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SUGGESTIONS FOR THE IMPROVEMENT OF GEOGRAPHY TEACHING

Report of a California Committee Appointed in December, 1913; *Report Submitted April,* 1915. *Roy E. Dickerson, Chairman.*

I. *Existing Conditions in California Schools.*

THE Committee appointed by the Geography Section of the California Teachers' Association, Bay Section, to further the interests of geography in California, have met ten or twelve times during the past year. The outline, according to which the committee worked, was prepared after consultation and correspondence with many geographers in the United States.

The recommendations of the Committee are based upon a consideration of this outline, and upon an investigation of the actual condition of geography teaching in the California schools. It was found that many courses of study are indefinite. They lack even the prescription of a definite minimum of required work. In certain school systems geography in the last two years of the grammar schools is given a very subordinate place in conjunction with the teaching of history. Again, excellent courses of study are outlined but not enforced.

The Committee found that most teachers both in the high and grammar schools lack training for teaching the subject, because of too general certification* for high school work, and on account of the absence of any required training in the subject during attendance in normal schools. Geographic training is recognized by the Committee as the prime prerequisite of all geographic teaching.

II. *Recommendations for Training of Teachers in Geography.*

a. The Committee recommends that a year's work in geography be required of every student in state normal schools.

b. Principals and boards of education are asked to assign the teaching of high school geography to those teachers only who are qualified for the work. This is a feasible plan for the future, as the University of California is planning to recommend for the high school certificate none but those prepared to teach from two to four subjects.

c. In city systems, supervisors of geography should be appointed to aid teachers of deficient training, and to give intelligent supervision.

***This refers to the fact that in California a person, properly certified in one subject, is entitled legally to receive a salary for teaching any other subject assigned to him in a high school.**

III. *Recommendations for the Teaching of Geography in the Public Schools.*

A. Course of study

1. In the elementary schools

a. *A definite course of study should be provided.* The work should be outlined from month to month. A minimum of work which *must* be finished should be definitely stated.

b. *The Home and the State should receive that emphasis which their relative importance demands.* The work in geography should be so arranged that the pupil shall as early as possible become acquainted with the geography of his immediate environment. The more he can learn of the wide world thereafter the better it will be. But should he be unable to complete the elementary school course, at least he will be thoroughly grounded in a working knowledge of the country in which he lives and in which his activities are to be carried on.

The Home region open to observation and study should receive first and careful attention, because upon its proper understanding rests the ability to interpret and make use of the material of all future work in geography.

The whole geography course should be built upon the practical observations and experiences of the pupil. In order that the pupils may acquire these experiences, school excursions are an absolute necessity. The curriculum should be so arranged as to permit such periodic excursions without disarranging other work.

c. *Geography should continue throughout the eighth grade of the course.*

2. In high schools

a. Physical geography, with proper explanation of such elements of other natural sciences as are necessarily involved, should be offered preferably in the first year in the high school.

b. Commercial and industrial geography may be offered in the second or third years in the larger high schools, but in the smaller schools the physical geography should include a proper proportion of the above work.

B. Suggestions concerning suitable texts and equipment

1. The text book in geography should be issued in parts, the phraseology of which should be suited to the needs of the various grades.

2. Maps should be placed in an atlas in preference to being bound in the text book, for larger maps will give a clearer and more distinct representation.

3. Maps and charts should be hung upon the walls previous to undertaking the study of a country, and should remain during the time it is being studied.

4. Adequate apparatus, and a text book intended for children, should be supplied. Supplementary readers, magazines, industrial material showing methods of manufacture, and printed matter from boards of trade and chambers of commerce, should be provided in quantity.

5. Relief models are recommended as forming a very important part of the equipment for teaching geography.

6. A stereopticon and slides should be used in all the larger schools.

7. A school museum will aid greatly in elucidating many geographic facts. This is within the possibilities of every school.

C. Method of Presentation

1. In the elementary grades

a. Environment geography is recommended for the first three primary grades. This should be taken up in connection with nature study, and should include excursions. Home geography, based upon school excursions, should form the starting point of all work in the subject. Knowledge of the home as a foundation for world geography is essential. Definite and regular time should be alloted for this work in making a school program.

All the interesting points in the neighborhood should be visited and examined. The objects seen should be made the subject of discussion held in the classroom later. Such work should be made the basis of language work and drawing.

A beginning should be made in the drawing of plans to scale. Drawings thus laid off to scale, should be made of the school-room, school-house, yard, street, etc. These should be properly oriented.

b. In the fourth grade

The conception of the map as another sort of picture should be made clear. This necessitates observation on the arrangement and distribution of the geographic features of the neighborhood. These should be compared with the relief model of the same district. If no model is to be had, a rude one should be made of sand or clay. A drawing should be made of the various cultural and natural features represented on the model, as well as sketches of the features themselves made in the field.

When the meaning of the lines and other symbols on the map of the local region are thoroughly mastered, students are then prepared to understand and use maps of regions which they have not seen.

A study of the relief model of the state should then be taken up, and this followed by a study of the globe, the relief globe if possible.

General notions of the world should be gained from the study of the globe and from good maps. This study should be accomplished by stories and talks of people and things in other lands.

Pupils of the fourth grade should be given a very general notion of the State, the United States, and the world at large. Very elementary training may be given in general regional geography of the world. A knowledge of the principal land and water forms should be established. If unimportant detail be omitted, formal locational work by means of globes and maps may be learned in this grade as preparation for the advanced work of the upper grades.

c. Because of the self-evident importance of Home and State, study of California should be emphasized in the early part of the course. At least as

much as one-third of the total time allotted to geography in the elementary school should be given to Home and State. Recognizing that geography should not be a memorizing of disconnected facts, it is recommended that from the very first the efforts of the teacher should be directed toward developing an understanding of the relationship existing between the different facts studied, and the dependence of one upon another.

d. A thorough study of California should be made in the fifth grade. A study of the United States, North America, and foreign countries should follow in the sixth and seventh grades.

e. In the eighth grade more life should be put into the subject by a broader teaching of physical and economic geography based upon excursions. The work of all grades may be vitalized by a study of the influence of physical conditions—such as climate and topography—upon the development of various countries, by an enlargement of the reading references and by the use of pictures and stereopticon.

f. Time allotment of the subject should be: Grades 1 and 2—a twenty minute recitation daily; grades 3, 4 and 5—a thirty minute recitation daily; grades 6, 7, and 8—forty or forty-five minutes on alternative days. (History is frequently given on other days).

2. In high schools

Geography is to be studied from a new view point in the first year of the high school. This new view point is that of the beginner in the scientific study of causal relations. Not only are these causal relations apparent in the physical phenomena of geography, they are also evidenced in the direct control which topography, elevation, slope, latitude, etc., have upon man's occupations. The study of this control should be followed by a study of regional geography with regard to the geographic position of the various nations, and to their boundaries as natural or artificial; also by some study of trade routes and of the commerce of the world.

In the study of causal relations mentioned above it seems to the Committee that there are great opportunities to stimulate students just entering high school, but it is also recognized by the Committee that this very attempt to begin scientific study has sometimes led to the failure of physical geography. For example, the study of streams should be a study of actual meanders, flood plains, deltas, and other erosion forms seen in the vicinity or seen in miniature during rainstorms. Such study can hardly be carried to excess. The classification of streams in the technical fashion of the geologically trained physiographer as subsequent, obsequent, superimposed, and so on, in bewildering detail should be absolutely avoided in first year high school work. Similar

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***This ideal for first year work has apparently been followed to a large extent by Salisbury, Barrows, and Tower in the book *Modern Geography*. While the committee do not feel that this particular text has fully worked out the ideal, yet it best illustrates a tendency which seems desirable in re-shaping the Physical Geography course. The textbook is mentioned as characteristic of the new movement but without any specific recommendation for the use of this particular book.**

considerations should prevail with the entire problem of landforms. Pictures and models must, of course, take the place of actuality in the study of essential types not found in the neighborhood, but the scientific classification should be simple and suitable to the age of the pupil and *not* be the classification of the university-trained investigator.

In the study of such elements of the other sciences as are found in physical geography an illustration may be offered. Oxygen may be made while studying the atmosphere and experiments tried to test its properties, but chemical explanations should be the simplest, and should be confined as closely as possible to the geographic problems involved. Similarly the pressure of the atmosphere is naturally to be studied with the help of a mercurial barometer set up before the class, with other simple experiments. In both instances, however, the primary object is geography and the secondary object is to make such slight excursions into the fields of chemistry, physics, and other sciences as shall enable the student to find himself, and to appreciate the relations of the other natural sciences to geography.

THE GEOGRAPHER'S NEED OF TRAVEL

"TO be equipped fully to study his subject the geographer must needs travel here and there to see different types of regions and get a first-hand acquaintance with them; to examine on a map and through the medium of other people's observations must be looked upon as a makeshift in place of an ideal, and one that can lead to satisfactory results only with exceptional minds. No doubt much of the geographer's knowledge must be acquired in this way, but nevertheless he must deplore the restrictions in his wanderings. Before he can hope to acquire any moderate degree of competence in research or exposition, he must see and examine at least certain types of land forms, experience certain types of climate, and live among certain formations of vegetation and their correlated types of human activity. The relation of man to his organic and inorganic setting can never be appreciated fully without some firsthand experience of varying conditions of environment. Otherwise the obvious facts will probably be lost sight of. Actual knowledge of and contact with the living world is essential for an understanding of the complexities of human interpendence with nature, and it alone can safeguard the geographer from the dangerous pitfalls of intellectual abstraction."

"And that this travel should be beyond the centres of our complex civilization is also important because geographical facts should first be looked for where they are most obvious, which is in primitive communities still in intimate relationship to their immediate environment."—*R. N. R. Brown.*

AN AESTHETIC SIDE OF GEOGRAPHY—BEAUTY IN LANDSCAPE FORMS

By Richard E. Dodge
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THE grand scenic features of our land, and of others known to travelers, have been described fully and seemingly adequately in prose and verse and often in language that is classic. A few writers, whose ways have led them among scenes of great beauty, neither awe-inspiring nor grand, have made known to us the possibilities of joy and inspiration to be gained from looking peacefully and sympathetically upon the little rivers and the small hills that make up their favorite landscape. We have at our service splendid accounts, written in appealing and effective form, of the Sierras, the Yellowstone Canyon, the Grand Canyon of the Colorado, and of Niagara—accounts which lead us to marvel at the grand scale on which nature has worked, and at the wonderful play of colors to be seen in rocks and water under varying intensities of sunlight.

Yet in most landscapes, size and color are only two phases of a many phased beauty, and in many cases the size even fades into insignificance; for when we look closely, the controlling element is that of form. In our mountains, majestic in size, symbols of permanency, stability and strength, seemingly unchanged by the passage of the ages, the impressive and inspiring feature to him who looks with understanding, is the beauty of outline. Each peak and ravine has a form, individual and appealing, over which the shadows play like the smiles and frowns in a human face.

When the profiles are rugged and the lines steeply inclined, the very uprightness of the slopes suggests a strength and power behind the form that give beauty and quality to the mountain mass, even though no single line is artistically pleasing, if studied alone. When, as in certain portions of the Rocky Mountains or the Southern Appalachians, the slopes are gentle, the forms broad and rolling, there is a quietness and repose that is beautiful in the extreme. Such slopes catch and hold the eye by their symmetry and strength and, beautiful in themselves as individual lines, are still more beautiful when, back of the individual lines, is seen the massive nature-sculpture of which every line is a necessary part.

The White Mountains, in New Hampshire, are impressive for their calm majesty, their rolling profiles and their solidity as an unit group. Here the forest cover, the play of shadows as the clouds roll about the summits or the storms rage even into the low-lying valleys, present color effects that appeal to the man who is impressed most vividly by color changes. But back of the superficial changing hues are the "everlasting hills," whose profiles are as they have been through the memory of man, beautiful, dignified and awe inspiring. He who looks out on such a landscape may be charmed and thrilled by the fleeting visions of color that baffle description or reproduction, but the vision

was for a moment and can never be experienced again. It is remembered for the pleasure it gave, but it can not again be seen as a mind picture, clear in detail and strong in outline, as was the momentary vision of beauty. No! the permanent impressions and memories brought home from a mountain—any mountain—are the outlines which never change from visit to visit, which can be engraved on the memory and recalled by the will at any time. It is the beauty of profiles and form that is the permanent pleasure brought away from an intimate life in such a region.

What is true of these mountains is equally true of any mountain area. The scraggy front of the flat topped Catskills or the Cumberlands, with their low-lying peaks of regular and yet varied form, present profiles of equally great beauty, though every line is different from the profiles seen in more varied landscapes. Mountain profiles, in fact any landscape forms, have an added charm and are more rich and suggestive to him who realizes that these profiles tell a story and reflect the life history of the landscape, just as the lines of care, worry, joy, peace and human sympathy in a beloved face reflect the life history of a friend. To look at a land form, not as a chance thing of the present human epoch but as a result of long ages of existence from the human standpoint, is to put yourself in sympathy with it, to feel in touch with the earth and to get a new comprehension of time and of the immutable earth processes which are carving lines of character and of strength or weakness in the great features of the earth.

Landscape forms impress themselves upon our minds more than we realize until change takes us into a new country where every line is unfamiliar and every outline strange. Homesickness is largely longing for the beloved landscape, whether it be the gently rolling slopes of the prairies, the absolute uniformity of some of the great plains of our country, the mighty towering peaks of the mountains, the flat profiles of the plateaus or the long flowing curves of the sandy beach.

The great charm of any landscape, which is looked at impartially and with no thought of the human associations of plenty and pleasure, want or harshness of life, is as much a beauty of form as of color. We can not divorce the two phases of landscape beauty, but surely one needs as much emphasis and attention as the other. Some surface features present as beautiful profiles and masses as any of the great statues of the masters of sculpture. Whoever has viewed the convex outlines of a perfect sand dune, fluted into thousands of minute ridges by the wind, carries away a memory of a mass of curves as beautiful as any that can be drawn or moulded. Yet these forms have been produced by chance blowings of the wind over millions of particles of sand, formed by one of the great forces of nature working quietly, everlastingly, and with varied emphasis through the years. The dune of today will change by the morrow and is as fleeting in outline as the form of a cloud we watch in the summer sky. Whatever its form, it is always beautiful, if the winds have had

free sway and abundance of material to work upon. To become really acquainted with a series of sand dunes, to know their forms, to read their history, to become steeped with their beauty, is to put oneself in sympathy with nature and to feel a reverence for her works that one can not feel as he faces many of the great works of mankind.

Wherever we go we can see landscape features, great and small, presenting outlines and forms that appeal to the attuned eye because of themselves and not primarily because of the colors which they present. This is especially true over a large part of the northeastern United States where the surface features are dignified, rather than majestic, but where variety of form gives an individuality and a beauty that baffles description. Even our favorite hymn, America, reflects in its stanzas the beauties of the New England landscapes, with "its rocks and rills, its woods and templed hills," and Whittier in several of his poems has pictured for us the quiet scenes, the attractive outlines, and the appealing visions of eastern New England. Here in our very midst are beauties beneath our feet that are little appreciated because so familiar. The smooth, rolling hills of the vicinity of Boston, with their convex curves in every profile and their perfect lenticular form, are among the most attractive features which can be found in any region. Majesty they lack, but yet there is a quiet dignity of outline that suggests slumbering strength and an inscrutable history that challenges the human mind. These hills are usually free from tree growth and, where not disfigured by the pigmy habitations of man, stand out in profile against the sky in low, broad curves that can never be forgotten and will always be loved by him who knows them as a friend.

In the eastern part of our country the color effects of tilled fields or forests often overshadow the beauty of form unless we look carefully; but where, as in the semi-arid regions of the west, the vegetation cover is less dense or even lacking, the beauties of form stand out with great clearness. He who has ridden across the Great Plains of Nebraska, Colorado, or Kansas has been impressed in one of two ways. If the traveler is unhappy when he is out of touch with mankind, he looks upon the Plains as a great, horrid, barren area, unfriendly to man and disagreeable in every feature, and yet which must be endured in as quiet agony as possible. If, however, he has an eye for form and color, these same plains will be a source of constant pleasure, not only during the journey but so long as memory brings their outlines clearly to mind. The gently rolling hills that stretch off in low billows to the horizon, like a great earth ground swell, suggest the infinite as do few features in the world. To look out on these great waves of form, succeeding one another in unending procession, and yet without monotony, to the edge of things, is to get an impression of large scale beauty, of the vastness of the world and of the infinitely small part that a human individual plays therein, that is almost overwhelmingly in its sweep. Here the beauty of form is supreme and only the mentally blind can fail to be impressed by that beauty. Detail is lost in the

vastness and dignity of the whole and the mind is opened to conceptions of time and space, as in a mountain region, but perhaps more easily because of the great unity of the whole which is the most striking feature of such a landscape.

Even in those regions that are absolutely flat, where the vision is limited only by the curved horizon, where it would seem as if there could be no beauty because of the absolute uniformity of features, there is a beauty that is most impressive to one who looks on such a place as a sculptor would on a perfect statue. The evenness of slope, the uniformity and the vastness are sources of wonder and inspiration that make a lasting impression. If the level stretches are covered by fields of wheat or grain, as they are in the vast flat plain of Minnesota and Manitoba, then color is added to form and the total impression is one of the most thrilling to be gained in any part of our country. Color effects add vastly to the beauty of any landscape, but color and size must be studied with form if we are to get the most from any landscape.

To be able to see landscape forms is one of the great pleasures of life and yet it is a pleasure that few seem consciously to cultivate. Everyone may be impressed by color combinations in nature and may be thrilled with emotion which he may try to voice in words. The grandest color spectacles of the scenic world impel one to silence, however, for they can not be described and they are on too vast a scale to be seen at a glimpse. Through the color we feel the hand of nature and we realize that these vast color schemes are on a scale that man can not duplicate and which he can never understand or wholly analyze.

When one looks on land forms he does not need to face any of the great landscape features of the world to be thrilled to silence and reverence, for every land has its own beauty, bespeaking an individual history. The smallest land form—maybe the minute ripple mark by the sea that is washed away by the next tide, or the curve of the river bank that changes with the hours—has an inherent beauty no less majestic or awe inspiring than the mighty Matterhorn or the towering crags that face some shore as a great advance rampart of the land. Every land has its beauties of form, impressive, appealing and beyond human understanding or complete appreciation. If they be analyzed into their parts from a purely artistic standpoint, like the curves of ancient architecture, they have an artistic force that is striking. If they be viewed as wholes and behind the forms there be seen in suggestion the long life history that each form may reveal in a fragmentary way to the sympathetic and understanding inquirer, they offer a source of pleasure, joy and profit to all.

To know one's landscape, to feel in sympathy with it, is often to be at peace with life. When all the world seems wrong and the burdens overwhelming, he who can look out on the familiar fields and hills or get among them and give way to their beauties of form and color has a resource within himself that will be an ever present power of recuperation.

SCENIC ROUTES TO THE PACIFIC COAST

By R. H. Whitbeck
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THERE are three reasons why an unusually large number of teachers will go to the Pacific Coast this summer:

1. The Panama-Pacific Exposition at San Francisco,

2. The meeting of the National Education Association at Oakland, Aug. 16-28.

3. The undesirability of European travel.

Moreover, the "See America First" slogan has undoubtedly converted many people. There are no less than nine routes by which one may go to the Exposition or return. Many people living near the Atlantic seaboard will be attracted by the Panama Canal route. The Panama Pacific Line, (Broadway, N. Y.) operating the *Finland* and the *Kroonland,* is offering 17-day cruises through the canal from New York to San Francisco or return. If the passenger prefers, he may travel one way by rail, on a round trip ticket. Doubtless other steamship lines are offering similar trips. Persons living near the Gulf or within easy reach of New Orleans will have a choice between the canal route and the railroad journey over the Southern Pacific. The latter can hardly be classed as a scenic route, and the hot summer journey may not seem especially attractive. While not the preferred route for reaching the Grand Canyon of the Colorado, one may, with some loss of time, reach this greatest of chasms by leaving the Southern Pacific at Maricopa and traveling northward.

The direct route from the East to the Grand Canyon is by way of the Atchison, Topeka and Santa Fe. At least two days should be allowed for a stop-over at the Canyon. The petrified forests of Arizona* are also reached by the Santa Fe Route. The southern routes are, of course, warmer and the mountain scenery is less impressive than by the central and northern routes, yet the Grand Canyon of the Colorado is one of the most wonderful places in all of our western Wonderland.

Several railway lines lead from Chicago or St. Louis to Denver, and the scenic features, so far as there are any, are much the same by the different routes. Two direct lines connect Colorado with the Coast. The Union Pacific and the newer line made up of the Denver and Rio Grande and the Western Pacific. The direct line of the Union Pacific avoids the Colorado mountains, bending northward through southern Wyoming. It is the quickest of the routes from Chicago to San Francisco, but has none of the famous scenic features along its main line. By leaving the main line at Ogden or at Granger and taking the Oregon Short Line northward, the Yellowstone Park may be reached; from the east, this route is less direct than that by the Northern Pacific. The scenery in the Sierra Nevadas along the Union Pacific

*See map and description, *Journal of Geography*, Vol. XI, p. 329. (June, 1913).

route is grand, but the long ride through the miles and miles of smoke-filled snow sheds was the most disagreeable railroad journey the writer ever took.

The other central route from Denver takes you to Salt Lake City by the Denver and Rio Grande, thence to San Francisco by the recently completed Western Pacific. The second portion of this route is closely parallel to the Union Pacific and affords substantially the same scenic features. The journey from Denver to Salt Lake City is one of superb mountain scenery. The journey has been described as follows:*

"From Denver to Pueblo, 120 miles, the Denver and Rio Grande runs south, with the Front Range of the Rockies on the west and the Great Plains stretching off to the east. Between Denver and Pueblo is Colorado Springs from which a branch line leads to Manitou. The famed Garden of the Gods is a short distance out of Manitou and Pike's Peak is reached by a cog railroad. The Ute Pass and North and South Cheyenne Canyons are also easily reached."

"At Canyon City, the road enters one of the most wonderful defiles of the West,—the Royal Gorge of the Arkansas. It is ten miles long, a half mile deep, and very narrow (only 30 feet in one place). Special open-top cars are used in summer for the canyon trips."

"Fifty miles beyond the Royal Gorge, the railroad forks, the main line crossing the continental divide by way of Tennessee Pass, and the narrow gage line crossing it at Marshall Pass; both passes are over 10,000 feet high, and a mile above the Arkansas River at the Royal Gorge. The main line, after zig-zagging over Tennessee Pass, runs through Red Cliff Canyon, near the Mount of the Holy Cross, into the Eagle River Canyon, with its cliff walls, 2000 feet high, honeycombed with mines. Farther on is the narrow canyon of the Grand River, with almost vertical cliffs 2500 feet high, Glenwood Springs, Grand Valley, and Grand Junction, one of Colorado's widely known irrigated orchard regions. At Utaline, midway of the Ruby Canyon, the railroad passes into Utah."

There are four northern routes,—three in the United States and one in Canada. Of these the Chicago, Milwaukee & St. Paul is a recently built line and is least known to tourists. It runs from Chicago, via Milwaukee and St. Paul, across South Dakota, through Central Montana, across Idaho and Washington to Seattle. While it offers much the same types of scenery as do the other northern routes it has no single outstanding feature such as the Yellowstone Park on the Northern Pacific or the Glacier National Park on the Great Northern Railroad.

The Northern Pacific route was the one selected by the International Geographical Excursion of 1912‡. This line uses the Chicago, Burlington & Quincy between Chicago and St. Paul. It crosses central Minnesota, and the premier wheat lands of the Red River Valley, North Dakota, Montana,

*_Journal of Geography_, Vol. XI, p. 306. (May, 1913).
‡_Journal of Geography_, Vol. XI, p. 105. (Nov., 1912).

Idaho and Washington to Puget Sound ports. The main line runs close to the Yellowstone National Park, the Park trains branching off at Livingston, Mont.

The Yellowstone National Park is by all odds the place of most varied scenery in the Cordilleran region. The Grand Canyon of the Yellowstone does not equal in grandeur the Grand Canyon of the Colorado, but the canyon is only one of many features of the park. Writing of the geysers, Prof. N. M. Fenneman says:** "The one thing which, above all others, makes Yellowstone Park a wonderland is its geysers . . . They vary in quantity of water erupted from a few gallons to thousands of barrels; in height of eruption from several feet to several hundred feet; in period from a half minute to a few weeks or even longer. Some play at regular intervals for many years, others at irregular intervals. Some throw a straight vertical shaft of water (except for the effect of wind), others discharge obliquely or throw out an irregular mass or sheet of water. Some receive back their waters into their own basins to be erupted again, others not. Some have wide open basins with the orifice at the center and lowest part, others spout from the apex of a cone built of siliceous deposits made by the water, others still have irregular mounds."

Besides the geysers and the Canyon, the Park includes a score of other notable features; among them the Mammoth Hot Springs and their beautiful terraces, the exquisitely tinted pools, the petrified forests, the obsidian cliff, Yellowstone Lake, the falls, the fumeroles, and man's masterpiece of rustic construction, Old Faithful Inn. The tour of the Park requires five days, and the cost varies from $5.00 to $10.00 a day. Reliable information regarding the Yellowstone Park, and methods and cost of seeing it, is contained in a government bulletin listed at the end of this article.

The Great Northern Railway is roughly parallel to the other northern routes. It uses the Chicago, Burlington and Quincy from Chicago to St. Paul and terminates at Seattle. Its mountain scenery is substantially like that of the Northern Pacific and of the Chicago, Milwaukee and St. Paul, but inferior to that of the Canadian Pacific. The Glacier National Park is reached by this route. Writing of this Park, Prof. Lawrence Martin says:* "Here one may see glaciers, as the name suggests, and although they are not as large as those on Mount Rainier, which contains the largest ice streams in the United States, they are in no way inferior to the glaciers along the Canadian Pacific Railway a little farther north. They are smaller than the ice tongues of the Alps and are mere pigmies compared with the glaciers of Alaska, but the Blackfoot Glacier and its neighbors in Glacier National Park are perfectly typical and to Americans they are very accessible."

The Canadian Pacific route is considered to have the most striking mountain scenery. Where this line crosses the Front Range of the Rockies near Banff and where it crosses the Selkirks farther west, the mountains are magni-

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****Journal of Geography*, Vol. XI, p. 314 (June, 1913).**

***Journal of Geography*, Vol. XI, p. 324. (June, 1913).**

ficent in their grandeur. The Crow's Nest branch of the Canadian Pacific affords the finest of the scenery. The line terminates at Vancouver.

All of the lines issue beautifully illustrated booklets which are either mailed free or at a nominal cost. Offices are maintained in all leading cities. Main offices of the various roads are located as follows:

The Southern Pacific at New Orleans.

The Atchison, Topeka and Santa Fe, the Union Pacific, and the Chicago, Milwaukee and St. Paul at Chicago.

The Denver and Rio Grande and Western Pacific at Denver.

The Northern Pacific and Great Northern at St. Paul; and

The Canadian Pacific at Montreal or Winnipeg.

Booklets and other information may be obtained by addressing the respective General Passenger Agents at these places.

Members of the U. S. Geological Survey are preparing geographical and geological guide books for use along the three Land-grant roads, namely, the Santa Fe, the Union Pacific, and the Northern Pacific. These guide books will be more than mere booklets for tourists. They will be carefully prepared descriptions of the geological and geographical features of the country traversed by these railways; they are written by prominent members of the Geological Survey, are illustrated with maps, cross-sections and half tone views and are written for the general reader, not simply for the geologist. These guide books will be sold for 50c and may be obtained by sending the amount in coin or money order, to the Director of the U. S. Geological Survey, Washington, D. C.*

Two special numbers of the Journal of Geography may be of interest to persons who plan to visit the Coast this summer. These are The California Number (June, 1911) and the Summer Travel Number (June, 1913).

CONTENTS OF THE JUNE, 1911, NUMBER

Geographic Influences in the Development of California.....
.....*James F. Chamberlain*
Topographic Environment of San Francisco.....*Ruliff S. Holway*
The Yosemite Valley.....*Mabel B. Peirson*
The Sequoias .....*T. P. Lukens*
The California Oil Industry.....*Ralph Arnold*
The Raisin Industry in California.....*Edna E. Rowell*
The Geographical Determinants of Los Angeles.....*W. H. Snyder*
Lake Tahoe, California-Nevada.....*George D. Louderbach*

CONTENTS OF THE JUNE, 1913, NUMBER

The Grand Canyon of the Colorado.....*W. M. Davis*
The Yellowstone National Park.....*N. M. Fenneman*
The Grand Coulee of Washington.....*R. E. Dodge*
Mount Mazama and Crater Lake.....*Lawrence Martin*

*None of these booklets will be ready for distribution before June 20.

Glacier National Park.....*Lawrence Martin*
The Yosemite National Park, Extracts from U. S. Geological Survey by F. E. Matthes.
The Petrified Forests of Arizona.....*F. E. Williams*
A Thousand Miles Through Colorado.....*R. H. Whitbeck*
Mammoth Cave.....*R. H. Whitbeck*

Either of the above issues of the magazine will be sent postpaid for 10 cents. See also the list of National Park publications following this article.

RAILROAD RATES TO THE COAST

In general the round-trip rates are as follows:

Chicago, Ill.	$ 62.50
Indianapolis, Ind., and Louisville, Ky.	67.10
Detroit, Mich.	73.50
Buffalo, N. Y.	81.10
St. Louis, Mo.	57.50
Cincinnati, Ohio	70.25
Cleveland, Ohio	74.50
Pittsburgh, Pa.	79.30
Wheeling, W. Va.	79.00
Omaha, Nebr., Council Bluffs, Iowa, and Leavenworth, Kans.	50.00
St. Paul and Minneapolis, Minn.	63.85
Little Rock, Ark., and New Orleans, La.	57.50
Ft. Worth and Dallas, Tex.	52.50
Denver, Colo.	45.00
Salt Lake City, Utah	35.00
New York, N. Y.	101.00

Tickets sold at these rates are good for a round trip by direct routes including San Diego, Los Angeles, San Francisco, and Oakland on the western coast. Where it is desired either to go or to return via the northwest route, taking in the cities of Portland, Seattle, Victoria, and Vancouver, an extra $17.50 is added to the rates quoted for direct routes. All tickets sold are good for a three months' trip with stopover privileges in either direction within the limits of ticket at all points west of Chicago.

To all teachers who attend the Panama-Pacific Exposition in San Francisco Ginn and Company are extending a cordial invitation to visit their exhibit in the Palace of Education. In this exhibit there are displays showing how textbooks are made, striking facts about the textbook business, motion pictures, and an interesting collection of early American schoolbooks. There is also a rest room with chairs, tables, desks, etc.

An attendant who is familiar with all the details of the Exposition will render any possible services.

Teachers who are not yet sure of their San Francisco address may find it convenient to have mail sent,—Care of Ginn and Company, Panama-Pacific Exposition, Palace of Education, San Francisco.

NATIONAL PARK PUBLICATIONS

DISTRIBUTED BY THE SECRETARY OF THE INTERIOR

THE following publications may be obtained free of charge from the Secretary of the Interior, Washington, D. C.:

List of national park publications. 28 pp. An annotated list of books, government publications, and magazine articles on the national parks.

National park pictures collected and exhibited by the Department of the Interior. 16 pp. A descriptive list of pictures exhibited at public libraries by the Department of the Interior. Contains short descriptiions quoted from well-known writers but does not contain illustrations.

The following information circulars contain data regarding hotels, camps, and principal points of interest, lists of books and magazine articles, sketch maps, and rules and regulations:

General information regarding Yellowstone National Park. 32 pp.

General information regarding Yosemite National Park. 22 pp.

General information regarding Mount Rainier National Park. 22 pp.

General information regarding Crater Lake National Park. 10 pp.

General information regarding Mesa Verde National Park. 24 pp.

General information regarding Sequoia and General Grant National Parks. 24 pp.

General information regarding the Hot Springs of Arkansas. 8 pp.

General information regarding Glacier National Park. 10 pp.

SOLD BY THE SUPERINTENDENT OF DOCUMENTS

The following publications issued by the Department of the Interior are for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C.:

Geological History of the Yellowstone National Park, by Arnold Hague. 24 pages, including 10 illustrations. 10 cents.

Geysers, by Walter Harvey Weed. 32 pages, including 23 illustratoins. 10 cents.

Geological History of Crater Lake, Oregon, by Joseph S. Diller. 32 pages, including 28 illustrations. 10 cents.

Some Lakes of Glacier National Park, by M. J. Elrod. 32 pages, inculding 19 illustrations. 10 cents.

Sketch of Yosemite National Park and an Account of the Origin of the Yosemite and Hetch Hetchy Valleys, by F. E. Matthes. 48 pages, including 24 illustrations. 10 cents.

Analyses of the Waters of the Hot Springs of Arkansas, by J. K. Haywood, and Geological Sketch of Hot Springs, Ark., by Walter Harvey Weed. 56 pp. 10 cents.

Proceedings of the National Park Conference held at Yellowstone National Park, September 11 and 12, 1911. 210 pp. 15 cents. Contains a discussion of national park problems by officers of the Government and other persons.

The Secret of the Big Trees: Yosemite, Sequoia, and General Grant National Parks, by Ellsworth Huntington. 24 pages, including 14 illustrations. 5 cents. Contains an account of the climate changes indicated by the growth rings and compares climate conditions in California with those in Asia.

Remittances for these publications should go by money order, payable to the Superintendent of Documents, Government Printing Office, Washington, D. C., or in cash. Checks and postage stamps can not be accepted.

THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

THE Panama-Pacific International Exposition was formally opened on the scheduled date, February 20, 1915. This glorious record of present day achievement was complete from blooming flower beds and paved roads to tinted domes and turrets.

The Exposition as opened is a reflection of the advance made by the nations along all lines of human endeavor since the St. Louis Fair. The Exposition is universal, which means that it shows the best in all of the world. The keynote is progress; not with an historic spirit that carries one back to the beginning, but with the spirit of the last ten years. This is the more important because of the event it celebrates—the completion of the Panama Canal. The Exposition itself had its beginning when, on February 15, 1911, President Taft signed the bill that recognized San Francisco as the city in which to hold the Panama completion celebration.

The site was chosen in July,—635 amphitheatrical acres along the shores of San Francisco bay just inside the Golden Gate. This is about two miles and a half long with an average width of a half mile. To the east is Fort Mason with its government fortifications, while to the west is the Presidio. San Francisco, like Rome, has been built on seven hills, and it is these that form the natural background. It takes one but twenty minutes to travel from the heart of San Francisco's cosmopolitan shopping district to the gates of the Exposition grounds.

The architecture is a blending of the old and new, an embodiment of the location and color of the best. The whole plan has been comprehensively grouped in three divisions: the west with its pavilions of nations, state buildings, and Live Stock Section; the east with its amusement section, here called the Zone; the central part with the Eleven Main Exhibit palaces.

Twenty-eight foreign nations are represented in the western section, Argentina, Austria, Australia, Bolivia, Belgium, Canada, Cuba, China, Denmark, France, Greece, Guatemala, Great Britain, Germany, Honduras, Holland, Italy, Japan, New Zealand, Norway, Persia, Portugal, Switzerland, Siam, Turkey, and Uruguay. This includes not only exhibits in the main palaces, but in most cases a separate building of great cost.

Alabama, Arkansas, California, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nevada, New Jersey, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Philippines, Texas, Utah, Virginia, West Virginia, Wisconsin, and Washington are the states and territories officially represented. Of these the California Host Building, which is an investment of over two million dollars, is the largest. It covers five acres and is built in characteristic Spanish Mission style. In it are located the exhibits of the fifty-eight counties as well as the various offices and social headquarters of the state people.

The most westerly 65 acres of the Exposition area is given up to the Live Stock department, where special events along all lines of the exhibit will be displayed. The appropriations for live stock premiums total over $250,000 and prize money over $425,000. Even the barns, with their excellent planning and model construction, are a part of the exhibit of the industry.

The concessions in the east cover another 65 acres. Here may be found amusements of all kinds and descriptions, educational and fun provoking. More than $12,000,000 has been expended along an area divided by a 3,000 foot avenue. Nearly all of these displays are unique, something new that the world has never been able to enjoy before.

The Main Exhibit palaces are devoted to Education and Social Economy, Liberal Arts, Manufactures, Varied Industries, Mines and Metallurgy, Transportation, Agriculture, Food Products, Fine Arts, Machinery, and Horticulture. Of these the last three are rather apart from the main group, which is laid out in the form of a Greek Cross. The Palace of Machinery is at the east, the Palace of Fine Arts at the west, the Palace of Horticulture to the south along with Festival Hall. Festival Hall is not a real exhibit palace. It has an Auditorium seating 10,000 people. In this palace will center the great music events, for the exposition has given particular attention to that feature.

The eight connected groups of palaces—Varied Industries, Manufactures, Liberal Arts, Education, facing south, and Mines and Metallurgy, Transportation, Agriculture, and Food Products facing north on San Francisco Bay—are connected by colonnades and five wonderful courts: Court of Abundance, Court of Flowers, Court of the Universe, Court of the Four Seasons and the Court of Palms. The Court of the Universe is the center for the entire exposition—a glorious court entered into under the Tower of Jewels. This tower is the dominant feature of the entire area. It is 435 feet high, with seven levels of graduated areas, each ornamented with sculptural features and hung with 135,000 scientifically cut glass jewels, possessing extraordinary refracting power. These give out marvelous colors in the glorious California sunlight by day, and at night distribute their beauty under shifting beams from scintillators. Everywhere the lights are a mass of concealed electricity softly displayed. Probably of all the wonders of the exposition the

illumination marks the greatest advancement. Each court has its own lighting scheme. No where is there present the familiar glare of exposition lights flashed upon white surfaces.

A unified color scheme has been planned and adopted under the direction of Jules Guerin, the famous colorist. He has marked out a goal of achievement which no other affair of its kind has ever reached.

Eight colors are used to decorate the ivory tinted color of the buildings, all of which are finished to represent Travertine stone. The garden lattices are French green, the flag pole, a characteristic Guerin orange-pink, the colonnades have a back ground of pinkish red and brown, the vaulted ceilings and recessed panels are deep cruelean blue, the small domes and mouldings are golden burnt orange, while urns are verde-antique and statuary gold.

The flower gardens, twenty-four in number, are planned to conform to the general color scheme. Each six weeks the entire plantings are changed and flowers of another color come into bloom, with a back-ground of forest trees and palms.

A radical move in the world of art was made in the installing of exterior mural paintings. There are nineteen of these, each distinctive in design but uniform in the use of color. They are distributed; one in the Court of Abundance by Frank Brangwyn, six in the Court of the Four Seasons by H. Milton Bancroft, two in the Arch of the Court of the Universe by Edward Simmons, two in the Tower of Jewels by William de Leftwich Dodge, two in the Court of the Universe, the western by Frank Du Mond, the eastern by Edward Simmons, two in the Court of Palms, Fruit and Flowers, by Childe Hassam; the Pursuit of Pleasure by Charles Halloway, and four in the Rotunda of the Palace of Fine Arts, by Robert Reid.

The sculpture of the Exposition has been gathered together by the work of 42 people, three women and thirty-nine men.

There are nine fountains, each an aquatic triumph. The Fountain of Energy by A. Sterling Calder, the Fountain of Earth by Robert I. Aitken, the Fountains of Rising Sun and Setting Sun by Adolph A. Weiman, the Fountain of Youth by E. B. Longman, the Fountain of El Dorado by Mrs. Harry Paine Whitney, the Fountain of Ceres by E. B. Longman, the Fountain of the Four Seasons by Furio Piccirille, the Fountain of Beauty and the Beast by Edgar Walter.

Of the equestian statues Cortez by Cary Rumsey, the End of the Trail by James Earl Fraser, and the Pioneer by Solon Borglum, will stand out in one's mind with wonderful clearness. Nothing, however, will carry the spirit of life and strength to one as the two heroic groups on the arches of the Court of the Universe—the Nations of the West and the Nations of the East by A. Sterling Calder.

There are more than 500 pieces of sculpture throughout the grounds, from the majestic figures to bas relief and each one is perfection in itself.

The exterior of the main group of buildings is decorated to mark the various epochs in architecture. The south wall in Renaissance of Italy and Spain, the west wall in the same style up to the time of Spanish distinctive architecture, the water-facing side of the group with California decorations of early explorers and historical figures of importance. The Palaces of Machinery and Fine Arts are of Roman style, the Horticulture building of Saracenic origin and Festival Hall resembles the Parisian Theater of Beaux Arts.

Nor is the beauty kept to the exterior of the buildings and grounds, nor even inside the fence, or more properly speaking the wall that encloses the ground. This wall is some twenty feet high, a mass of growing plants that bloom throughout the year. Inside the buildings the greatest efforts have been made to secure pleasing and unique features. The old idea of the most in the least space has given way to tasteful arrangement and gratifying presentation.

With all it is a dream city, color, light, sculpture, flowers, and architecture, all combined with California hospitality and climate in offering to the world the twelfth international exposition, the third ever held in the United States and by far the greatest display of beauty and advancement that has ever been presented.—[Ardee Parsons in April *Sierra Educational News*].

THE WEATHER FACTOR IN THE GREAT WAR; LATE WINTER AND SPRING*

By Robert DeC. Ward
Harvard University

IN the eastern zone the Germans seem to have been especially quick to take advantage of hard roads and frozen marshes for making their advances, during cold spells, probably because, last autumn, they lost many men in a sudden thaw which made retreat difficult. The heavy German armored motors have given endless trouble, while the lighter Russian motors, weighing about one-fifth as much, have proved far more serviceable on the muddy roads. While the ground was snow-covered, the German officers' automobiles in Poland were provided with snow plows. Von Hindenburg's great advance in East Prussia, early in February, which resulted in the capture of large numbers of Russians between the "jaws" of a German "trap", failed of being more completely successful by reason of a change in the weather. The advance began over hard ground and frozen swamps. A sudden thaw turned vast lowland areas into seas of mud and of icy water. The northern "jaw" of the German "trap," being delayed because of these handicaps and its longer march, failed to meet the southern "jaw" on time, and through this gap

*In a previous article in this *Journal*, Vol. xiii, 1915, Feb. and Mar., pp. 169-171, 209-216, the writer considered the period Nov. 1 to Feb. 1. The present paper covers the most important events from Feb. 1 to May 1.

about one-third of one Russian army division escaped. The German pursuit was greatly hampered. Provision and ammunition trains stuck fast, and supplies had to be carried on sledges in the teeth of a furious snowstorm. The rapid advance of spring in this area, with the general melting of recent heavy snows, made immense stretches of lowland impassable—shallow seas, with treacherous bogs beneath. At the end of March a whole German army corps, which had crossed the thin and melting ice of one of the East Prussian lakes, found a return impossible, and suffered heavy losses (Petrograd despatch).

The desperate fighting in the Carpathians continued through March without substantial gains by either side. The Russians then began a great forward movement, under terrible weather conditions, the men having to march and to draw their guns through waist-deep snows. This advance distinctly slackened after three weeks of obvious success, but whether this slackening was due to the spring rains and floods and prohibitory weather and transport conditions, or to the activity of the Austrian and German armies, is not clear. Petrograd despatches assert that the Russians gained all that they expected to before the spring thaws set in. Toward the end of April, fine spring weather without the hampering effects of cold, snow, ice, and short rations, stimulated military activity in this region. If the weather had not interfered, said a Russian officer, his troops would have advanced far into Hungary early in the winter. The complete story of the winter campaign in the Carpathians can probably never be written. The deep snows buried hundreds of dead, whose bodies were revealed whenever a thaw set in. The melting snows froze at night, and the early morning fighting began over huge fields of ice. The deep snows had an important effect in increasing the mortality. The only way to advance was on beaten paths, in Indian file, which formation obviously involves heavy losses, as the men can be picked off one by one. Had the Russians succeeded in gaining the southern slopes of the Carpathians late in the winter, the earlier spring in that region would have favored their rapid advance into Hungary.

The weather played an important part in the siege of Peremysl. The fortress was kept in touch with the outside world by means of aeroplanes, which brought despatches and food. When the Austrians were holding back the besieging armies in September the roads became practically impassable. Therefore the wounded from the battle of the San had to be left in Peremysl instead of being sent south, as was the plan. This extra number of persons hastened the exhaustion of the food supplies. Further, after the "mildest December known in years," a very cold January and February snowed up the Austrian troops and left Peremysl to its doom. The Russian retreat from Bukowina, about mid-February, was necessitated by the danger of the troops being cut off by floods. Similarly, the plan of a fresh Austrian invasion of Serbia, early in February, was abandoned on account of the spring floods.

In the western war zone, during the capture of Les Eparges by the French early in April, the heavy rains and deep mud made artillery and rifles

useless, and bayonets were used in storming the trenches. The English advance to Neuve Chapelle was followed by a period of relative inactivity, because of the impassable condition of the roads, which prohibited artillery manoeuvres. The advance of spring, the drying of the ground by warm winds and sunshine, and the more buoyant spirits of the troops, combined to induce increased military activity, but the melting of the snows caused floods in many of the rivers, especially in Alsace.

In the late winter the snow was 8—10 feet deep on the upper ranges of the Vosges, and heavy snowstorms frequently brought military operations to a standstill. Snow forts were built, and the batteries were so effectively hidden in snow-banks as to be invisible even from aeroplanes. In the early spring thaws the mountain streams became raging torrents and operations were suspended.

The small number of Zeppelin raids during the winter, in spite of several calm spells, suggested the probability that the Germans were waiting for more settled weather before making more serious ventures. It was, therefore, not surprising to note the greatly increased activity in aerial warfare as spring came on (early April). Since then almost daily air raids of one sort or another, have occurred. The record of the flying corps in Flanders is remarkable. From August to early February, only six days in the air were missed. Significant, also, is the fact that every important German air raid during the winter occurred at the time of a fog, apparently accurately forecasted by the German meteorological war service.

In the Dardanelles naval operations were begun in fine weather, as was to be expected; but later on storms frequently interfered with the Allies' naval attacks, and with their seaplane reconnaissances, giving the Turks opportunity to repair damage, and to mount fresh guns. The storms which have caused the trouble belong to a type most common in spring, crossing central Italy and the Adriatic and moving thence east or northeast. The delay in the Dardanelles is of far less consequence since the breaking up of the ice at Archangel. With that northern port open again, war munitions and other supplies may be shipped to Russia, and Russian wheat can find an outlet.

A new and curious emphasis upon the importance of weather controls in modern warfare comes in the report that the wind which, on one occasion, had been carrying the deadly asphyxiating gases used by the Germans towards the Allies' trenches, suddenly changed, blowing these same gases back to the German lines, and forcing the men to flee for their lives. Another interesting item is found in the opinion of an English copper expert that, owing to the mud and water in which so much fighting has taken place, probably not 5 per cent of the cartridges used have been recovered for remelting. Mud and water may thus play a part in hastening the end of the war. The use of white woolen caps, white uniforms, and white sheets put over the uniforms, in order to make the troops less conspicuous against the snow, is also worthy of note. For the same reason some of the horses even have been painted white.

Cambridge, Mass., May 8, 1915.

SUMMER COURSES IN GEOGRAPHY

By F. E. Williams
University of Wisconsin, Madison

THE following list is incomplete. An effort was made to secure information from all of the larger universities and many of the smaller ones. In some instances our inquiries brought no replies and in others only "preliminary announcements" had been issued; these do not, as a rule, give details regarding courses. Many normal schools also give summer courses in geography.

University of California, Berkeley

Commerce of the Pacific, Mr. Wright.

Field Physiography, Saturday excursions, Associate Professor Holway.

Physiography of California, Associate Professor Holway.

Physical Geography in the High School, Mr. Wright.

University of Chicago

Teachers' Course in Geography, Miss Lanier.

Economic and Commercial Geography, First Term, Miss Lanier; Second Term, Dr. Jones.

Elementary Field Course, Four weeks in southwestern Wisconsin, commencing June 21, Dr. Jones.

Field Course; The Environs of Chicago, Second Term, Dr. Jones.

The Elements of Meteorology, Mr. Reed.

Geography of Europe, Associate Professor Goode.

The Climate of North America, Mr. Reed.

Influence of Geography on American History, Professor Barrows and Miss Lanier.

Economic Geography of the United States, Associate Professor Goode.

Conservation of Natural Resources, Professor Barrows.

Geographic Influences in the History of the Western States, Professor Barrows.

Field Geography, Parts of Colorado, Utah, Nevada, and California, September 3rd to October 2, Associate Professor Goode.

The School of Education of Chicago University offers courses in:

Geography in the Primary Grades, Associate Professor Baber.

Geography in the Grammar Grades, Associate Professor Baber.

Geography in the High School, Professor Salisbury and Associate Professor Baber.

University of Colorado, Boulder

Principles of Earth Science, Associate Professor McCourt.

Economic Geography, Associate Professor McCourt.

Teachers' Course in Geography, Associate Professor McCourt.

General Principles of Anthropo-Geography, Miss Semple.

Geography of the Mediterranean Basin, Miss Semple.

COLUMBIA UNIVERSITY, NEW YORK, N. Y.

Physical Geography and its Economic Aspects, Professor McFarlane and Miss Hatch.

Physiography of the Eastern United States, Professor D. W. Johnson.

Physical Geography and Physiography of the Western United States, Field Work in Western part of the United States, Professor D. W. Johnson.

Commercial Geography, Professor McFarlane and Miss Hatch.

The Teachers' College of Columbia University offers courses in:

The Teaching of Geography in the Lower Grades, Miss Kirchwey.

The Teaching of Geography in the Upper Grades, Miss Kirchwey.

The Teaching of Regional Geography in the Junior High School, Miss Kirchwey.

General Geography for Elementary Schools, Miss Kirchwey.

Human Geography in Elementary Schools, Professor Dodge.

CORNELL UNIVERSITY, ITHACA, N. Y.

Round Table Conferences in Geography and Geology, Professor Carney.

Physical Geography, Assistant Professor von Engeln.

Industrial Geography, Professor Carney.

Geography of North America, Assistant Professor von Engeln.

Teachers' Course in Geography, Professor Carney.

Geography and Geology, Field Course, Assistant Professor von Engeln.

DENISON UNIVERSITY, GRANVILLE, OHIO

Geography for Grammar Grades, North America, Miss Henderson.

Geography for Primary Grades, Miss Henderson.

Nature Study in the Grades, Miss Henderson.

GEORGE PEABODY COLLEGE FOR TEACHERS, NASHVILLE, TENN.

Principles of Geography, Mr. Ward and Miss Dopp.

Commercial Geography, Mr. Ward.

Commercial and Industrial Geography of Latin-America, Mr. Osuna.

Geography of North America, Mr. Ward.

Influence of Geography on American History, Miss Dopp.

UNIVERSITY OF KANSAS, LAWRENCE

Physiography, Professor Haworth.

UNIVERSITY OF MICHIGAN, ANN ARBOR

Teachers' Course in Physiography, Assistant Professor Scott.

THE UNIVERSITY OF MINNESOTA, MINNEAPOLIS

General Geography, Mr. Posey.

Physiography, Mr. Posey.

Field Course in Geography. Three separate tours in the western part of the United States, Mr. Lehnerts.

THE UNIVERSITY OF MISSOURI, COLUMBIA

Teachers' Geography, Mr. Parkins.
Fundamentals of Physical and Human Geography, Mr. Parkins.
Geographic Literature, A reading course, Mr. Parkins.

UNIVERSITY OF NEBRASKA, LINCOLN

Physical Geography, Miss Nelson.
Industrial Geography, Miss Nelson.

UNIVERSITY OF NORTH DAKOTA, GRAND FORKS

The summer courses in Geology and Physiography are given at Devil's Lake.

Physiography, Assistant Professor Simpson.
Field Geology and Physiography, Assistant Professor Simpson.

OHIO UNIVERSITY, ATHENS

Physiography, Professor Thompson.
Political Geography, Professor Thompson.
Methods in Geography, Professor Martzolff.

SUMMER SCHOOL OF THE SOUTH, KNOXVILLE, TENN.

Elementary Geography, Professor Merrill.
Industrial Geography, Professor Merrill.
Physical Geography, Professor Merrill.

UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE

Physical Geography, Miss Kelley.
Industrial Geography, Professor Hughes.
Aims and Methods in Geography, Miss Kelley.
Review of Grammar School Geography, Professor Hughes.
Course in Constructive Illustration, Professor Hughes.

UNIVERSITY OF WASHINGTON, SEATTLE

Industrial and Commercial Geography, Professor Gregory.
Physical and Regional Geography, Professor Gregory.

UNIVERSITY OF WISCONSIN, MADISON

Commercial and Industrial Geography, Associate Professor Whitbeck.
Physical and Applied Geography, Associate Professor Whitbeck.
Geography of Europe, Mr. Williams.
Influence of Geography on American History, Mr. Williams.
Advanced Geography, Associate Professor Whitbeck.
Summer Field Course in Physiography and Geology, four weeks in August beginning after close of summer session, Mr. Williams.

RECENT PUBLICATIONS

GEOGRAPHIC INFLUENCES IN OLD TESTAMENT MASTERPIECES. By Laura H. Wild. Ginn and Co. 1915. 182 pages. $1.00.

Miss Wild is a professor of Biblical History and Literature in Lake Erie College. She says regarding the purpose of her book: "It is to give illustrations of how Old Testament literature is interpreted through the geography, history, botany, and zoology of the land in which it was written." In the attainment of this purpose the author is more than ordinarily successful. She is moderate in her claims regarding the effect of geographical influences upon the Hebrew people and their institutions. Illustrations are drawn mainly from the Old Testament poems whose figures of speech so well reflect the influence of environment upon the methods of thought and expression. Miss Wild collects and groups under appropriate heads the many examples of the influence which the desert, the pastoral life, the precarious agriculture, the cultivation of the vine, and the contrasts of plain and mountain exerted upon the life of the people. The book is a worthy effort and well done. It adds one more to the growing collection of interpretative geographical studies and it is sure to lead to others.

ECONOMIC GEOGRAPHY. By John McFarlane. viii. 560 pp. The Macmillan Company, 1914. $2.25.

The author is a lecturer in Geography in the University of Manchester, England, and the book is English in its general style of makeup. There are no half-tone plates, no colored maps, no diagrams and only a few sketch maps. No black-face type sets off the topics of paragraphs and there are very few tables of statistics. Yet the book has a number of strong features. The distribution of space among the countries treated is well balanced and would not be at all badly suited to American requirements; for example, the United Kingdom is given 38 pages, Germany 26, Japan 11, Canada 24, Mexico 5, and the United States 36.

Only three chapters are given to preliminary discussions (1) Physical Conditions of Economic Activity, (2) Climate, (3) Vegetation, and each of the remaining 44 chapters is devoted to a country or to a region (e. g. Central America, West Africa). The book gives more than usual consideration to geographical influences; countries are subdivided and their different physiographic or climatic provinces are treated as natural units: for example, France is subdivided into the following provinces: (1) the central massif, (2) the Armorican massif, (3) Aquitaine, (4) the Mediterranean region and the Rhone Valley, (5) the Alpine zone, (6) the Eastern border, (7) the Basin of Paris. In addition, certain topics—communications, waterways, commerce—which belong to the country as a whole are treated. This method of treatment is in our judgment the correct one for an Economic Geography. Though countries are not usually natural geographic units, yet they are the proper units for treatment in economic geography.

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ECONOMIC GEOGRAPHY. By John McFarlane. viii. 560 pp. The Macmillan Company, 1914. $2.25.

The author is a lecturer in Geography in the University of Manchester, England, and the book is English in its general style of makeup. There are no half-tone plates, no colored maps, no diagrams and only a few sketch maps. No black-face type sets off the topics of paragraphs and there are very few tables of statistics. Yet the book has a number of strong features. The distribution of space among the countries treated is well balanced and would not be at all badly suited to American requirements; for example, the United Kingdom is given 38 pages, Germany 26, Japan 11, Canada 24, Mexico 5, and the United States 36.

Only three chapters are given to preliminary discussions (1) Physical Conditions of Economic Activity, (2) Climate, (3) Vegetation, and each of the remaining 44 chapters is devoted to a country or to a region (e. g. Central America, West Africa). The book gives more than usual consideration to geographical influences; countries are subdivided and their different physiographic or climatic provinces are treated as natural units: for example, France is subdivided into the following provinces: (1) the central massif, (2) the Armorican massif, (3) Aquitaine, (4) the Mediterranean region and the Rhone Valley, (5) the Alpine zone, (6) the Eastern border, (7) the Basin of Paris. In addition, certain topics—communications, waterways, commerce—which belong to the country as a whole are treated. This method of treatment is in our judgment the correct one for an Economic Geography. Though countries are not usually natural geographic units, yet they are the proper units for treatment in economic geography.

The book is well written and gives the impression of thorough reliability. Its content is admirable. Its shortcomings (to an American) are those mentioned in the beginning.

THE PANAMA CANAL AND INTERNATIONAL TRADE COMPETITION. By Lincoln Hutchinson, University of California. X+283 pages. The Macmillan Co., New York, 1915.

A careful study and a clear presentation of a topic which has much interest at the present time. The author has studied the trade routes of the last ten or fifteen years to show what the trend of development has been. Then the new factor, the canal, has been introduced and an attempt made to show how it may alter the direction or character of trade movement. The author has made a comprehensive study of statistics of all countries which publish such data and has added valuable personal observations based on a series of visits to all important regions concerned.

The discussion is largely of an economic nature but there is much of value for the geographer in this volume. F. E. W.

THE CHILD'S INTEREST IN GEOGRAPHY

IN *American Education* for February, 1915, Dr. George J. Dann, Superintendent of Schools, Oneonta, N. Y., discusses the above topic. He asks: "Are not the interests of the children themselves the key to the solution of this problem of procedure in teaching geography?"

Dr. Dann proceeded to investigate this question in the grades of the Oneonta schools. With the cooperation of his teachers he made a series of tests of various sorts under conditions which were likely to reveal the actual geographical interests of pupils of different ages.

"A preliminary effort was made to have the children in every grade investigated, instructed in each of the following departments of the subject:

(a) The human phase
(b) Maps and map drawing
(c) The industrial phase
(d) The physical phase
(e) The wonderful and curious
(f) Beautiful scenery
(g) The mathematical phase
(h) Animal life
(i) Plant life
(j) The commercial phase
(k) Historic places."

* * * "For several days before each test was made the instructors were cautioned to put aside all personal preferences and to strive to put the children in possession of sufficient geographical data relating to each of these phases to make them capable of intelligent choice." * * * "The most marked

interest of fourth grade boys was in the human phase—in peoples, particularly those whose customs, dress and manners are far different from our own."

In the fifth and sixth grades he found that the interest of boys in the human phase was even more notable than in the preceding year and he summarizes by saying: "Our results were of such a nature as fairly to establish the fact that the interests in people, their habits, customs, and dress is strong and persistent in all of the grades of the elementary school."

"Our study of interest in the industries was one of the most satisfactory features in this investigation. Beginning with a scant comprehension of the value of the study of industries in the fourth grade, the interest increases steadily in importance from year to year."

* * * "Interest in commerce seemed to develop more slowly than interest in industry. No evidence of any importance of a desire to know more of this topic was to be found in the fourth or fifth grades."

"Interest in *relief,* drainage, climate, etc., was everywhere meagre until the eighth grade. Even then it was not predominant. Causal relations do not appeal to young children in the field of physical geography to any greater extent than they do elsewhere. Physical geography is probably better taught to eighth year and high school pupils."

"This investigation seems to confirm the present tendency of pedagogical thinking as related to children's interests in mathematical geography. Although "type questions," suggestive of a rich content, were brought to the attention of hundreds of children, no interest of any importance was in evidence until the child had reached the upper grammar school grade. It is fully understood that there are other factors besides interest which must be taken into consideration. I do feel convinced, however, that interest has not been sufficiently considered by those who have prepared courses, and syllabi and text books. Interest is primarily a feeling and feelings are rarely neutral. If we can make an ally of interest in our geography work, we shall have the right to expect more satisfactory results than we have secured so many times in the past when we have found interest battling against us."

The Journal of Geography believes that Supt. Dann's conclusions are essentially correct.

PROFESSOR DAVIS'S REPORT ON HIS STUDY OF CORAL REEFS

IN *Science* of March 26, Professor W. M. Davis gives a preliminary report on the SHALER MEMORIAL study of coral reefs. He announces that the full report will probably appear in the ***Bulletin of the Museum of Comparative Zoology*** at Harvard College. Excerpts from his preliminary report follow:

"Any one of the eight or nine theories of coral reefs will satisfactorily account for the visible features of sea-level reefs themselves, provided the postu-

lated conditions and processes of the invisible past are accepted; hence a study of the visible features of the reefs alone can not lead to any valid conclusion."

"The testimony of the first group of witnesses—the central islands of barrier reefs—convinced me that Darwin's theory of subsidence is the only theory competent to explain not only the development of barrier reefs from fringing reefs, but also the shore-line features of the central (volcanic) islands within such reefs; for the embayment of the central islands testifies emphatically to subsidence, as Dana long ago pointed out; thus my results in the study of this old problem of the Pacific agree with those of several other recent students. Darwin's theory of subsidence also gives by far the most probable explanation of atolls."

"The testimony of the second group of witnesses—massive elevated reefs such as occur on certain Fiji Islands—convinced me that Darwin's theory of subsidence gives the only satisfactory explanation of the origin of such reefs also; for their limestones rest unconformably on the normally eroded surface of a preexistent foundation."

"All the still-stand theories of barrier reefs—that is, all the theories which involve a fixed relation of the reef foundation to the sea level during the formation of the reef mass—are excluded by evidence of submergence found in the embayed shore lines of the central islands within barrier reefs."

"The glacial-control theory proves incompetent to explain barrier reefs, and it is therefore held to be generally incompetent to explain atolls also."

"No absolute demonstration of the origin of coral reefs, or, for that matter, of any other geological structure, is possible; the most that can be hoped for is a highly probable conclusion. The conclusions announced above in favor of Darwin's theory are believed to have about the same order of probability as that usually accepted as 'proof' in geological discussions."

"The Great Barrier reef of Australia, the largest reef in the world, with a length of some 1,200 miles and a lagoon from 15 to 70 or more miles wide, has grown upward during the recent subsidence by which the Queensland coast has, after a long period of still-stand, been elaborately embayed."

HUMAN GEOGRAPHY

"I would confine geography to what is now called human geography, keeping always in mind the reaction of man on his environment as well as the converse, and I would extend its boundaries only in the direction of social geography, which is a study scarcely touched so far, but one that must of a certainty follow."

"It is sometimes argued that the environmental influences acting on man are too complex and too involved to admit of analysis and estimation, and that in consequence the problems of the geographer are insoluble. There can be no denying the complexity of the material to be studied, but surely this is exactly why its study entails the most rigorous of scientific methods. That is what makes geography a subject for advanced and not elementary students.

But surely the difficulties of the problems that face the geographer do not warrant their abandonment. In fact, by very reason of this complexity, there is no study which to such an extent as geography frees the mind from narrowness."

"There can, of course, be no finality in the conclusions of the geographer. The world is changing of itself and by our actions, and we are changing too. A given set of physical circumstances, even though they could remain unchanged from one generation to another, would affect man differently in those successive periods, because he himself had changed, and his value towards his conditions is not the same in the two generations. We can therefore only arrive at the nature of the relationships between man and his environment at a given time, and their tendencies and directions of change. I doubt how far the quantitative value of geographical controls can be estimated with any degree of precision. But this quantitative estimate is of the greatest importance. When the value of such interpretation is realized, the geographer's valuation and forecast will commend themselves to men of affairs and statesmen."—[R. N. R. Brown in *Scot. Geog. Mag.* Sept., 1914].

EXAMINATION IN GEOGRAPHY, STATE OF NEW JERSEY

State Examination for Pupils of the Highest Elementary Grade, June 4, 1914.

PART I.

The pupil or teacher will select nine questions from Part I. Each question counts 10 *points.*

1. (a) Name *two* canals in New Jersey. (b) Name *two* counties through which *each* passes. (c) Name *two* important cities or towns near or through which *each* passes.

2. (a) Name *five* states that lie north and east of New Jersey.

(b) Name *four* states that lie between New Jersey and the Mississippi river.

(c) What state occupies the northwest corner of our country?

3. (a) Name *five* important seaports on the Atlantic coast and the state in which each is located.

(b) Name *three* important cities on the Great Lakes and *two* on the Gulf of Mexico and the state in which each is located.

4. (a) Select *five* of the following and state from which of our "possessions" outside of the boundaries of the United States each is obtained in large quantities: seal fur, sugar, tobacco, pineapples, gold, coffee.

(b) Write a short paragraph explaining what the United States is doing to help make its "foreign possessions" prosperous. Refer to the government, education and industries.

5. Name a state in which each of *five* of the following industries is important: hard coal mining; foreign commerce; silk weaving; sheep raising; cotton weaving; iron manufacturing; granite quarrying; soft wood lumbering.

6. What and where are five of the following: Quebec, Vancouver, Halifax, New Foundland, Honduras, Lower California, Puget, Sault St. Marie?

7. (a) Name *five* cities of South America and state the country in which each is located.

(b) Write a paragraph on *one* of these five cities which will show why it is interesting or important.

8. (a) Name an important city in each of *ten* of the following countries, and (b) tell for what each is important: Portugal, Spain, Holland, Greece, Italy, Belgium, Russia, Denmark, Norway, Germany, Turkey, Austria, England, Switzerland, Sweden.

9. Write a paragraph on *one* of the following topics. Think carefully before writing, that your paragraph may show that you have made a study of the topic.

(a) Governments of Europe.

(b) Five cathedrals of Europe.

(c) The glaciers of Switzerland.

10. (a) Name *five* exports from Asia.

(b) Write a paragraph on one of the following: Siberia, Thibet, the recent awakening of China.

11. (a) Name *five* cities of Africa.

(b) Write a paragraph on *one* of the following: The control of European nations in Africa, "the Cape to Cario" railroad, climate of Africa.

12. (a) Name *five* foreign seaports with which New York is connected by lines of steamers.

(b) Name *one* article that is likely to be sent from each of these foreign ports to New York.

PART II.

Each pupil or the teacher will select one of the following questions.

13. (a) On the outline map of New Jersey indicate five of the following: Newark; Bayonne; Passaic river; Sandy Hook; a mining region; an oyster growing section; the region of pines; Camden; Atlantic City; Cape May.

(b) Write a paragraph on the natural resources of New Jersey. In your paragraph consider at least five such natural sources of wealth.

14. (a) On the Mercator Projection map (the large outline map) write in their proper places *ten* of the following: Australia; Suez Canal; Gulf of St. Lawrence; Ireland; Baltic Sea; Cuba; Cape of Good Hope; Siam; Carribean Sea; Andes Mountains; Tropic of Cancer; Russia; Indian Ocean; New Jersey; Great Lakes.

(b) Write *two* short paragraphs on winds—(1) their causes and (2) effects.

15. (a) Using the hemisphere outline maps, place figures indicating the correct position of the following locations:

(1) latitude 0° longitude 90°W.
(2) latitude 52°S. longitude 70°W.
(3) latitude 66—2/3°N. longitude 20°W.
(4) latitude 23½°N. longitude 90°E.
(5) latitude 39°S. longitude 148°E.
(b) Explain the difference between the terms "up" and "north."

A BALKAN STATESMAN'S PREDICTION ABOUT THE WAR

WE can say with certainty that the Russians and their allies have the best of it, and that this terrible struggle will end in defeat of Germany and Austria-Hungary.

And what will be the result? The outcome of the present war may be conceived thus:

First: Russia will expand at the expense of Austria-Hungary, will annex Galicia, and will demand from Turkey the occupation of Constantinople and a part of Asia Minor.

Second: France will regain her two former provinces of Alsace and Lorraine.

Third: England will be benefitted by gaining possession of the German colonies, as well as a part of Asia Minor.

Fourth: Belgium will receive as recompense for her stoic resistance the Duchy of Luxemburg.

Fifth: The two kindred kingdoms of Servia and Montenegro will receive as a reward for a struggle not less stoical, the two Austrian provinces peopled by the Serb race.

Sixth: Italy as a reward for her neutrality would receive the provinces of Austria-Hungary inhabited by Italians.

Seventh: Roumania for the same reason would receive Bukovina, an Austrian province peopled largely by Rumanians.

As to Turkey, which has been dragged into the war by German political intrigue, she will be erased from the map as an independent country. It will be the same with Albania; for her inhabitants, who are in a state of perpetual anarchy, cannot long exist as an independent people.

This, then, is my view of the conditions that will be imposed upon the conquered. Perhaps changes may be even greater; for it is possible that Austria-Hungary, like Turkey, may cease to exist as an independent empire. Nor is it inconceivable that certain provinces might be snatched from Germany, as for example German Poland. But here you have in a few words my opinion of the actual situation now existing in Europe, and my predictions for the future.—From "Europe—After the War," by Dr. Ivan Yovitchevitch, in the *American Review of Reviews* for March.

THE WONDERFUL GROWTH OF THE UNITED STATES

IN the half century since the close of the Civil War (1864 to 1914), the United States has been passing through a period of growth such as no nation in the world's history ever experienced.

FROM 1864 TO 1914

The population increased from 34 to 98 million.
The per capita wealth from $500 to $1500.
The per capita circulation of money from $20 to $35.
The number of national banks from 467 to 7500.
Individual savings bank deposits from 240 to 4800 million dollars.
Imports of merchandise per capita from $9 to $19.
Exports of merchandise from 160 to 2360 million dollars.
Exports of merchandise per capita from $4.70 to $24.00.
Exports of leather and its manufactures from 2 to 58 million dollars.
Exports of oil, mineral and refined, from 7 to 145 million dollars.
Exports of wood manufactures from 12 to 100 million dollars.
Exports of all manufactured articles from 35 to 1100 million dollars.
The value of farms and farm property from 8 to 40 billion dollars.
The annual value of farm products from 2 to 9 billion dollars.
The value of farm animals from 1 to 6 billion dollars.
The wheat grown from 160 to 890 million bushels.
The corn grown from 800 to 3,000 million bushels.
The cotton grown (1866-1913) from 2 to 14 million bales.
The rice grown (1866-1913) from 25 to 700 million pounds.
The cane sugar made (1870-1914) 100 to 600 million pounds.
The copper mined from 8000 to 550,000 long tons.
The coal mined from 21 to 500 million long tons.
The petroleum obtained from 88 to 10,500 million gallons.
The pig iron produced from 1 to 31 million long tons.
The steel from 15,000 to 30,000,000 long tons.
The value of manufactured products from 2 to 20 billion dollars.
Cotton spindles from 6 to 32 millions.
Cotton spindles in the South from a half million in 1880 to 12 million in 1913.
Imports of raw silk from 400,000 to 35,000,000 pounds.
The per capita consumption of sugar from 18 to 87 pounds.
The per capita consumption of coffee from 3 to 10 pounds.
The railroad mileage from 34,000 to 260,000 miles.
The postal receipts from 12 to 270 million dollars. R. H. W.

THE INDEX

AESTHETIC SIDE OF GEOGRAPHY—Beauty in Landscape Forms, R. E. Dodge, 302.

AGRICULTURAL DEVELOPMENTS IN ALASKA, 18.

ALASKA, Agricultural Developments in, 18.

Alaskan Glacier Studies, by Tarr and Martin, (review, by W. H. Hobbs), 262.

ALUMINUM, M. G. Edwards, 253.

America, Latin, note on William R. Shepherd's book, 30.

AMERICAN GEOGRAPHERS, meeting of the Association of, 178.

AMERICAN GEOGRAPHICAL SOCIETY AND ASSOCIATION OF AMERICAN GEOGRAPHERS, Joint Meeting of, 292.

ARABIA, Central, (note), 24.

ARGENTINA AND CHILE, (notes), 232.

ASSOCIATION OF AMERICAN GEOGRAPHERS, AND AMERICAN GEOGRAPHICAL SOCIETY, Joint Meeting of, 292, annual meeting, 178.

Atlas de la Plus Grande France, by Onesime Reclus, (review, by V. C. Finch), 261.

AVEZZANO EARTHQUAKE ZONE, A Visit to the, E. V. Robinson, 265.

BALKANS AND TURKEY, the, 26.

BALKAN STATESMAN'S PREDICTION ABOUT THE WAR, 327.

BANKS, The First Branch, 64.

BEAN, E. F., review of Snyder's *First Year Science*, 199.

BOOTH, MARY J., Supplementary List of Materials on Geography, 139.

BRIGHAM, A. P., review of Tarr's *College Physiography*, 295.

BRITISH ISLES, Influence of the Mountains of, upon their History, Benjamin A. Stevens, 39.

BROWN, ROBERT M., The Minimum Requirement, 48.

BUILDING MATERIAL IN THE UNITED STATES, (note), 82.

BUTLER, B. S., Note on Copper Mines of Northern Michigan, 124.

CACAO CROP OF ECUADOR, (note), 126.

CALIFORNIA, Report of State Committee, on the Improvement of Geography Teaching, 297.

CALIFORNIA, Notes on, 226.

CAPE COD CANAL, The, note by M. K. Davis, 194.

CAPE VERD ISLANDS; a Visit to San Vicente in 1890, Mark Jefferson, 224.

CASCADE MOUNTAINS, The, Minna J. Telker, 242.

CEYLON, The Monsoons and Navigation near, (note), 195.

CHAMBERLAIN, JAMES F., Crater Lake, 9.

CHILD'S INTEREST IN GEOGRAPHY, The, 322.

CHILE AND ARGENTINA, (notes), 232.

CHINA, American Oil Drillers in, (note), 126.

————, Methods of Transportation in, Ling Hau Deng, 91.

CINCINNATI, New Topographic Map of, (note), 223.

Climate and Weather of Chicago, by Henry J. Cox and John H. Armington, (review), 59.

CLIMATIC BELTS, the Shifting of, 21.

COLOMBIA, Emerald Mines of, 16.

College Physiography, by R. S. Tarr, (review by A. P. Brigham), 295.

COLONIES, The War in the, Lawrence Martin, 172.

COLORADO GEOGRAPHIC SOCIETY, The, (note), 264.

COMMERCE OF THE LEADING PORTS, 293.

CONSTRUCTION MATERIAL OF CITIES, Frederick Homburg, 79.

CORN AND HAY, M. Frances Warren, 190.

————, Imported from Argentina, (note), 60.

COPPER MINES OF NORTHERN MICHIGAN, The, Note by B. S. Butler, 124.

CORAL REEFS, Professor Davis's Report on his Study of, 323.

COTTON IS KING, (note), 95.

COTTON AND THE WAR, (note), 96.

CRATER LAKE, James F. Chamberlain, 9.

DAVIS, M. K., note on The Cape Cod Canal, 194.

DEATH VALLEY, George D. Hubbard, 277.

DENG, LING HAU, Methods of Transportation in Fukien Province, China, 91.

DIAMOND MINES OF SOUTH AFRICA, 13.

DICKERSON, R. E., Suggestions for the Improvement of Geography Teaching, 297.

DODGE, RICHARD E., An Aesthetic Side of Geography—Beauty in Landscape Forms, 302.

————, Note on Central Arabia, 24.

————, Note on Trade of the Yenesei River, 25.

————, The Purposes of Geography Teaching, 83.

Economic Geography, by John McFarlane, (review), 321.

ECUADOR'S CACAO CROP, (note), 126.

EDITORIAL COMMENT—An Important Movement in Geography, 270.

————, Some Geographical Aspects of the present European War, 51.

EDWARDS, M. G., Aluminum, 253.
EFFICIENCY IN THE TEACHING OF GEOGRAPHY, Suggested Means of Measuring, R. H. Whitbeck, 53.
EGYPT, Commercial Year in, (note), 127.
ELEMENTARY SCHOOL GEOGRAPHY, What shall it include and in what order shall its Materials be presented? H. W. Fairbanks, 201.
Elements of General Science, by Otis W. Caldwell and W. L. Eikenberry, (review by E. L. Jay), 200.
EMERALD MINES OF COLOMBIA, 16.
EMERSON, PHILIP, Primary Geography and Reading, 89.
English Industries of the Middle Ages, by L. F. Salzmann, (review), 198.
ESSENTIALS OF MODERN GEOGRAPHY AND CRITERIA FOR THEIR DETERMINATION, George J. Miller, 129.
EUROPE, War and the Food Supply in, V. C. Finch, 97.
————, Unfamiliar Names in the Geography of, 110.
EUROPEAN WAR, Some Geographical Aspects of, R. H. Whitbeck, 51.
EUROPEAN WINTER AND THE WAR, The, R. DeC. Ward, 169.
EXAMINATION IN GEOGRAPHY, New Jersey, 325.
————, New York State, 57.
FAIRBANKS, H. W., What should Elementary School Geography include, and in what order should its Materials be presented? 201.
FINCH, V. C., Item on Rainfall and Spring Wheat, 20.
————, Review of Reclus' *Atlas de la Plus Grande France*, 261.
————, War and the Food Supply in Europe, 97.
First Year Science, by William H. Snyder, (review by E. F. Bean), 199.
FRANCE: Its National Defense (Onesime Reclus), translated by A. N. Winchell, 280.
GANNETT, HENRY, death of, 122.
GARDNER, LUCY M., Picture Study in Geography, 85.
Geographic Influences in Old Testament Masterpieces, by Laura H. Wild, (review), 321.
GEOGRAPHICAL CONDITIONS OF NATIONAL DEFENSE, The, Joseph Partsch, 102.
GEOGRAPHICAL CONSIDERATIONS IN SELECTING THE SITE FOR THE NATIONAL CAPITAL, 260.
GEOGRAPHICAL EXCURSION IN THE WESTERN UNITED STATES, (conducted by D. W. Johnson), (note), 296.
GEOGRAPHICAL FACTORS IN THE AGRICULTURE OF DUPAGE COUNTY, ILLINOIS, Laura Hatch, 216.
GEOGRAPHICAL SOCIETY OF WISCONSIN, note on, 56.
GEOGRAPHER, The, (note), 263.
GEOGRAPHER'S NEED OF TRAVEL, The, (note), 301.
GEOGRAPHY IN CITY HIGH SCHOOLS, R. H. Whitbeck, 1.
————, The Child's Interest in, 322.
————, Essentials of Modern, and Criteria for their Determination, George J. Miller, 129.
———— and Geology, (note), 264.
————, An important Movement in, R. H. Whitbeck, 270.
———— in Normal and Secondary Schools, (note), 84.
———— in Normal Schools, A Study of, 257.
———— in the Periodicals, 195.
GEOGRAPHY OF AN OIL FIELD, Notes on the Human, John L. Rich, 185.
————, Picture Study in, Lucy M. Gardner, 85.
———— and Reading, Philip Emerson, 89.
————, The Scientific Basis of, 63.
GEOGRAPHY TEACHING, The Purposes of, Richard E. Dodge, 83.
————, Suggestions for the Improvement of, R. E. Dickerson, 297.
GEOGRAPHY, Summer Courses in, F. E. Williams, 318.
————, Supplementary List of Materials on, Mary J. Booth, 139.
————and the War in Europe, G. B. Roorbach, 65.
———— of the War, Teaching the, (note), 200.
GERMAN CAMPAIGN IN FRANCE AND BELGIUM, The, Lawrence Martin, 69.
———— Trade in a Belgian Port, (note), 136.
GERMANY, Conservation of the Potato Crop in, (note), 193.
GERMANY'S RELATIONSHIPS WITH HER COLONIES, Contrasted with England and France, 177.
Germany of Today, note on Charles Tower's book, 30.
GILMORE, M. R., A Glimpse at Nebraska Indian Geography, 179.
GOODE, J. PAUL, note on Tree-Planting in the Philippines, 127.
GOVERNMENT REPORTS, Some valuable, (list), 256.
Grand Canyon from Wyoming to Mexico, Through the, by E. L. Kolb, (review), 198.
GREGORY, W. M., The Geography of Tennessee, 233.
HATCH LAURA, Geographical Factors in the Agriculture of DuPage County, Illinois, 216.
HAWAIIAN VOLCANOES, (note), 230.
HAWAII, Enormous Rainfall in, (note), 230.
HIGH SCHOOLS, Geography in, R. H. Whitbeck, 1.

HOBBS, W. H., review of Tarr and Martin's *Alaskan Glacier Studies*, 262.
HOMBURG, FREDERICK, Construction Material of Cities, 79.
HUDSON'S BAY COMPANY, In the Domain of the, C. K. Leith, 33.
HUBBARD, GEORGE D., Death Valley, 277.
HUMAN GEOGRAPHY, (note), 324.
Iceland, note on W. S. C. Russell's book, 30.
IMPROVEMENT OF GEOGRAPHY TEACHING, Suggestions for the, R. E. Dickerson, 297.
INDIAN GEOGRAPHY OF NEBRASKA, A Glimpse at, M. R. Gilmore, 179.
INDUSTRIES AND TRADE OF THE UNITED STATES, (note), 94.
INFLUENCE OF THE PHYSICAL FEATURES OF SCOTLAND UPON THE PEOPLE, 46.
Introductory Geology, by T. C. Chamberlin and R. D. Salisbury, (review), 168.
ITALIAN EARTHQUAKE AREA, The, (note), 269.
JAPAN, Variations in Temperature of Hot Springs in, 25.
JAPAN SEA, Movement of Water in the, 24.
JAY, E. L., review of Caldwell and Eikenberry's *Elements of General Science*, 200.
JEFFERSON, MARK, Cape Verd Islands; a Visit to San Vicente in 1890, 224.
KANSAS, The Earth Products of, W. J. Sutherland, 274.
KIAU-CHAU, (note), 119.
KIMBERLEY DIAMOND MINES, 14.
KNAPPEN, R. S., Note on "A New Declaration of Independence," 72.
LANDSCAPE FORMS, Beauty in, R. E. Dodge, 302.
LANGE, E. G., Lest we forget, 251.
LANTERN SLIDE SETS, loaned by U. S. Government, 228.
LEITH, C. K., In the Domain of the Hudson's Bay Company, 33.
LEST WE FORGET, E. G. Lange, 251.
LOESS SOILS OF SOUTHWESTERN OHIO, The, (note), 195.
Man in Europe, The Antiquity of, by James Geikie, (review), 198.
MARTIN, LAWRENCE, The German Campaign in France and Belgium, 69.
———, The Russian Campaign in Germany and Austria, 112.
———, The War in the Colonies, 172.
MATERIAL FOR USE IN SCHOOLS, (supplied by U. S. Government), 227.
MATERIAL ON GEOGRAPHY, Supplementary List of, Mary J. Booth, 139.
MILLER, GEORGE J., communication from, 55.
———, Essentials of Modern Geography and Criteria for their Determination, 129.
MINERAL RESERVES, Our, note by R. S. Knappen, 72.
Minerals and the Microscope, by H. G. Smith, (review), 168.
MINIMUM REQUIREMENT IN GEOGRAPHY, The, Robert M. Brown, 48.
MONTANA, New Map of, issued by U. S. Geological Survey, (note), 230.
MONSOONS AND NAVIGATION NEAR CEYLON, (note), 195.
MOUNTAINS, Influence of, upon the History of the British Isles, 39.
NAMES IN THE GEOGRAPHY OF EUROPE, Unfamiliar, 110.
NATIONAL ASSOCIATION OF GEOGRAPHY TEACHERS, communication by George J. Miller, 55.
NATIONAL PARK PUBLICATIONS, list of, 311.
NATURALISTS' DIRECTORY, The, (note), 168.
NEBRASKA INDIAN GEOGRAPHY, A Glimpse at, M. R. Gilmore, 179.
NEWS NOTES, 127.
NEW YORK BARGE CANAL, The, 137.
NICE AND THE RIVIERA, Industries of, (note), 136.
NISHIHARA, GEORGE, note on Movement of Water in the Japan Sea, 24.
———, note on Variations in Temperature of Hot Springs in Japan, 25.
NORMAL SCHOOLS, A Study of Geography in, 257.
Northern Patagonia, by Bailey Willis, (review), 295.
OHIO, The Loess Soil of Southwestern, (note), 195.
PACKARD, LEONARD O., Siberia, 74.
PACIFIC COAST, Scenic Routes to the, R. H. Whitbeck, 306.
PANAMA CANAL FINISHED ON TIME, (Note), 93.
Canal and International Trade Competition, The, by Lincoln Hutchinson, (review), 322.
PANAMA-PACIFIC INTERNATIONAL EXPOSITION, The, (Ardee Parsons), 312.
PETROLEUM AND THE WAR, (note), 119.
PHILIPPINE ISLANDS, The, notes on, 60.
———, Tree Planting in the, note by J. Paul Goode, 127.
PHOTOGRAPH EXHIBIT, Traveling, loaned by U. S. Government, 227.
PHOTOGRAPHS SOLD BY U. S. GOVERNMENT, 229.
PICTURE STUDY IN GEOGRAPHY, Lucy M. Gardner, 85.
PORTS, Foreign Commerce of the Leading, 293.
Principles of Stratigraphy, by A. W. Grabau, (review), 167.
PURPOSES OF GEOGRAPHY TEACHING, The, Richard E. Dodge, 83.
Quaternary Ice Age, The, by W. B. Wright (review), 197.

RAINFALL AND SPRING WHEAT, (note), 20.
Republics of South and Central America, by C. Reginald Enock, (review by F. E. Williams), 199.
RICH, JOHN L., Notes on the Human Geography of an Oil Field, 185.
ROBINSON, E. V., A Visit to the Avezzano Earthquake Zone, 265.
ROORBACH, G. B., Geography and the War in Europe, 65.
RUSSIA, Canal Systems of, (note), 288.
————, Commercial, (notes), 286.
————, Fairs of, (note), 289.
————, Forests of, (note), 291.
————, Great Rivers of, (note), 288.
————, Inland Waterways of (note), 287.
————, Railway Systems of, (note), 289.
————, Transportation in, (note), 286.
————, The Volga River System, (note), 287.
Russia of the Russians, by Harold Whitmore Williams, (review), 29.
RUSSIAN CAMPAIGN IN GERMANY AND AUSTRIA, The, Lawrence Martin, 112.
SAN FRANCISCO BAY, Physiographically Unfinished Entrances to, 23.
SCENIC ROUTES TO THE PACIFIC COAST, R. H. Whitbeck, 306.
SCOTLAND, Influence of the Physical Features of, upon the People, 46.
SIBERIA, Leonard O. Packard, 74.
SOUTH AFRICA, Diamond Mines of, 13.
SOUTH AUSTRALIA, Examination Questions for Certificate in, 58.
SPRING WHEAT AND RAINFALL, (note), 20.
STEVENS, BENJAMIN A., Influence of the Mountains of the British Isles upon their History, 39.
SUGAR, Notes on, 17.
SUMMER COURSES IN GEOGRAPHY, F. E. Williams, 318.
SUTHERLAND, W. J., The Earth Products of Kansas, 274.
TEACHING OF GEOGRAPHY, Suggested Means of Measuring Efficiency in the, R. H. Whitbeck, 53.
TELKER, MINNA J., The Cascade Mountains, 242.
TENNESSEE, The Geography of, W. M. Gregory, 233.
THWAITES, F. T., note on Physiographically Unfinished Entrances to San Francisco Bay, 23.
TIMBER SUPPLY, Our, Notes on, 61.
TRADE AND INDUSTRIES OF THE UNITED STATES, (note), 94.
Trade of the World, by James D. Whelpley, (review), 59.
TRANSPORTATION IN FUKIEN PROVINCE, CHINA, Ling Hau Deng, 91.
TURKEY AND THE BALKANS, 26.
UNITED STATES, Economic Resources of the, 121.
————, Industries and Trade of the, (note), 94.
————, Wonderful Growth of, 328.
WAR, AND THE FOOD SUPPLY IN EUROPE, V. C. Finch, 97.
———— in the Colonies, The, Lawrence Martin, 172.
———— in Europe, Geography and the, G. B. Roorbach, 65.
————, The European Winter and the, R. DeC. Ward, 169.
———— Maps, 176.
WARD, R. DEC., The European Winter and the War, 169.
————, Review of *The Weather and Climate of Chicago*, 123.
————, The Weather Factor in the Great War; Late Winter and Spring, 315.
WARREN, M. FRANCES, Corn and Hay, 190.
WASHINGTON, D. C., Geographical Considerations in Selecting the Site for, 260.
Water Reptiles of the Past and Present, by S. W. Williston, (review), 168.
WEATHER FACTOR IN THE GREAT WAR, The, R. DeC. Ward, 315.
WHITBECK, R. H., Geography in City High Schools, 1.
————, Scenic Routes to the Pacific Coast, 306.
————, Some Geographical Aspects of the present European War, 51.
————, Suggested Means of Measuring Efficiency in the Teaching of Geography, 53.
WILLIAMS, F. E., review of Enock's *The Republics of South and Central America*, 199.
————, Summer Courses in Geography, 318.
WINCHELL, A. N., translation of Reclus' *France: Its National Defense*, 280.
WOOD, the Use and the Waste of, (note), 25.
YENESEI RIVER, Trade on the, 25.
YUKON RIVER, The (note), 229.

CONTENTS OF VOLUME XIII

SEPTEMBER.

GEOGRAPHY IN CITY HIGH SCHOOLS.....*R. H. Whitbeck* 1
CRATER LAKE .....*James F. Chamberlain* 9
THE DIAMOND MINES OF SOUTH AFRICA..... 13
THE EMERALD MINES OF COLOMBIA..... 16
ABOUT SUGAR 17
GEOGRAPHICAL ITEMS OF INTEREST..... 18
THE BALKANS AND TURKEY..... 26
RECENT PUBLICATIONS 29
HARDWOOD FORESTS OF SOUTHERN SOUTH AMERICA..... 31
QUIZ ON THE CONTINENTS.....*Philip Emerson* 32

OCTOBER.

IN THE DOMAIN OF THE HUDSON'S BAY COMPANY.....*Charles K. Leith* 33
INFLUENCE OF THE MOUNTAINS OF THE BRITISH ISLES UPON THEIR HISTORY .....*Benjamin A. Stevens* 39
INFLUENCE OF THE PHYSICAL FEATURES OF SCOTLAND UPON THE PEOPLE..... 46
THE MINIMUM REQUIREMENT.....*Robert M. Brown* 48
SOME GEOGRAPHICAL ASPECTS OF THE PRESENT EUROPEAN WAR..... 51
SUGGESTED MEANS OF MEASURING EFFICIENCY IN THE TEACHING OF GEOGRAPHY .....*R. H. Whitbeck* 53
NEWS NOTES 56
EXAMINATION QUESTIONS IN GEOGRAPHY, NEW YORK STATE (*Regents*).... 57
SOUTH AUSTRALIA 58
RECENT PUBLICATIONS 59
NOTES 60

NOVEMBER.

GEOGRAPHY AND THE WAR IN EUROPE.....*G. B. Roorbach* 65
THE GERMAN CAMPAIGN IN FRANCE AND BELGIUM.....*Lawrence Martin* 69
A NEW DECLARATION OF INDEPENDENCE..... 72
SIBERIA .....*Leonard O. Packard* 74
CONSTRUCTION MATERIAL OF CITIES.....*Frederick Homburg* 79
BUILDING MATERIALS IN THE UNITED STATES..... 82
THE PURPOSES OF GEOGRAPHY TEACHING.....*Richard Elwood Dodge* 83
GEOGRAPHY IN NORMAL AND SECONDARY SCHOOLS..... 84
PICTURE STUDY IN GEOGRAPHY.....*Lucy M. Gardner* 85
PRIMARY GEOGRAPHY AND READING.....*Philip Emerson* 89
METHODS OF TRANSPORTATION IN FUKIEN PROVINCE, CHINA..*Ling Hau Deng* 91
CURRENT GEOGRAPHICAL NOTES..... 93

DECEMBER.

WAR AND THE FOOD SUPPLY IN EUROPE.....*V. C. Finch* 97
THE GEOGRAPHICAL CONDITIONS OF NATIONAL DEFENSE.....*Joseph Partsch* 102
UNFAMILIAR NAMES IN THE GEOGRAPHY OF EUROPE..... 110
THE RUSSIAN CAMPAIGN IN GEGMANY AND AUSTRIA.....*Lawrence Martin* 112
PETROLEUM AND THE WAR..... 119
KIAU-CHAU 119
ECONOMIC RESOURCES OF THE UNITED STATES..... 121
HENRY GANNETT 122
CURRENT GEOGRAPHICAL NOTES..... 123
NEWS NOTES..... 127

JANUARY.

ESSENTIALS OF MODERN GEOGRAPHY AND CRITERIA FOR THEIR DETERMINATION .....*G. J. Miller* 129
ANNOTATED BOOK LIST ON COMMERCIAL GEOGRAPHY..... 135
CURRENT GEOGRAPHICAL NOTES..... 136
SUPPLEMENTARY LIST OF MATERIAL ON GEOGRAPHY WHICH MAY BE OBTAINED FREE OR AT SMALL COST.....*Mary J. Booth* 139
With nearly 500 Titles.
RECENT PUBLICATIONS 167

THE CONTENTS

FEBRUARY.

THE EUROPEAN WINTER AND THE WAR.....*Robert DeC. Ward* 169
THE WAR IN THE COLONIES.....*Lawrence Martin* 172
THE ASSOCIATION OF AMERICAN GEOGRAPHERS..... 178
A GLIMPSE AT NEBRASKA INDIAN GEOGRAPHY.....*M. R. Gilmore* 179
NOTES ON THE HUMAN GEOGRAPHY OF AN OIL FIELD.....*J. L. Rich* 185
CORN AND HAY.....*M. Frances Warren* 190
CURRENT GEOGRAPHICAL NOTES..... 193
GEOGRAPHY IN THE PERIODICALS..... 195
RECENT PUBLICATIONS 197

MARCH.

WHAT SHOULD ELEMENTARY SCHOOL GEOGRAPHY INCLUDE AND IN WHAT ORDER SHOULD ITS MATERIALS BE PRESENTED.....*H. K. Fairbanks* 201
THE EUROPEAN WINTER AND THE WAR.....*Robert DeC. Ward* 208
GEOGRAPHICAL FACTORS IN THE AGRICULTURE OF DU PAGE COUNTY, ILL. .....*Laura Hatch* 216
CAPE VERD ISLANDS; A VISIT TO SAN VICENTE IN 1890.....*Mark Jefferson* 224
MATERIAL FOR USE IN SCHOOLS..... 227
CURRENT GEOGRAPHICAL NOTES..... 229

APRIL.

THE GEOGRAPHY OF TENNESSEE.....*W. M. Gregory* 233
THE CASCADE MOUNTAINS.....*Minna J. Telker* 242
LEST WE FORGET.....*E. G. Lange* 251
ALUMINUM .....*M. G. Edwards* 253
A STUDY OF GEOGRAPHY IN NORMAL SCHOOLS..... 257
GEOGRAPHICAL CONSIDERATIONS IN SELECTING THE SITE FOR THE NATIONAL CAPITAL 260
RECENT PUBLICATIONS:
ATLAS DE LA PLUS GRANDE FRANCE.....*V. C. Finch* 261
ALASKAN GLACIER STUDIES.....*W. H. Hobbs* 262
THE COLORADO GEOGRAPHIC SOCIETY 264
GEOLOGY AND GEOGRAPHY 264

MAY.

A VISIT TO THE AVEZZANO EARTHQUAKE ZONE.....*E. V. Robinson* 265
THE ITALIAN EARTHQUAKE AREA..... 269
AN IMPORTANT MOVEMENT IN GEOGRAPHY.....*R. H. Whitbeck* 270
THE EARTH PRODUCTS OF KANSAS.....*W. J. Sutherland* 274
DEATH VALLEY .....*George D. Hubbard* 277
FRANCE: ITS NATIONAL DEFENSE (Translated by A. N. Winchell)..... 280
THE PRESENT STATUS OF HIGH SCHOOL PHYSICAL GEOGRAPHY..... 283
COMMERCIAL RUSSIA 286
FOREIGN COMMERCE OF THE LEADING PORTS..... 293
RECENT PUBLICATIONS 295

JUNE.

SUGGESTIONS FOR THE IMPROVEMENT OF GEOGRAPHY TEACHING; REPORT OF A CALIFORNIA COMMITTEE BY THE CHAIRMAN....*Roy E. Dickerson* 297
AN AESTHETIC SIDE OF GEOGRAPHY—BEAUTY IN LAND FORMS.....
.....*Richard E. Dodge* 302
SCENIC ROUTES TO THE PACIFIC COAST.....*R. H. Whitbeck* 306
NATIONAL PARK PUBLICATIONS..... 311
THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION..... 312
THE WEATHER FACTOR IN THE WAR; LATE WINTER AND SPRING.*R. DeC. Ward*..315
SUMMER COURSES IN GEOGRAPHY.....*F. E. Williams* 318
RECENT PUBLICATIONS..... 321
THE CHILD'S-INTEREST IN GEOGRAPHY..... 322
PROFESSOR DAVIS'S REPORT ON HIS STUDY OF CORAL REEFS..... 323
A NEW JERSEY EXAMINATION IN GEOGRAPHY..... 325
A BALKAN STATESMAN'S PREDICTION ABOUT THE WAR..... 327
THE WONDERFUL GROWTH OF THE UNITED STATES..... 328

This Number Contains Index and Table of Contents of Vol. XIII

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VOLUME XIII JUNE 1915 NUMBER 10

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CONTENTS

	Page
Suggestions for the Improvement of Geography Teaching; Report of a California Committee by the Chairman - *ROY E. DICKERSON*	297
The Geographer's Need of Travel	301
An Aesthetic Side of Geography—Beauty in Land Forms - *RICHARD E. DODGE*	302
Scenic Routes to the Pacific Coast - *R. H. WHITBECK*	306
National Park Publications	311
The Panama-Pacific International Exposition	312
The Weather Factor in the War; Late Winter and Spring - *R. DeC. WARD*	315
Summer Courses in Geography - *F. E. WILLIAMS*	318
Recent Publications—	
Geographic Influences in Old Testament Masterpieces	321
Economic Geography	321
The Panama Canal and International Trade Competition	322
The Child's Interest in Geography	322
Professor Davis's Report on His Study of Coral Reefs	323
Human Geography	324
A New Jersey Examination in Geography	325
A Balkan Statesman's Prediction About the War	327
The Wonderful Growth of the United States	328
Index of Volume XIII	329

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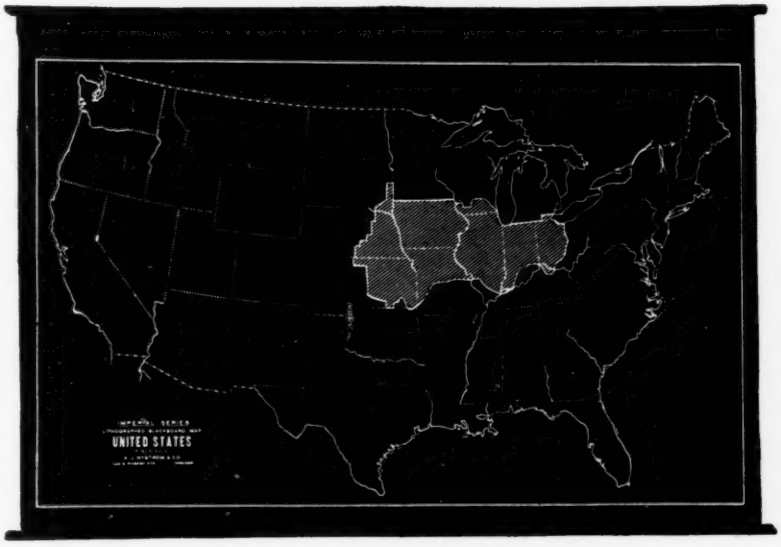

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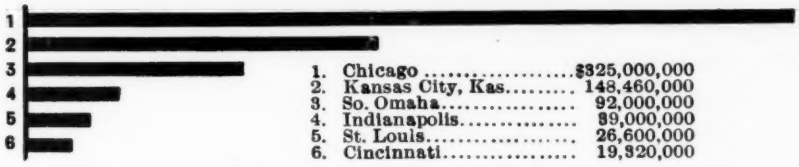

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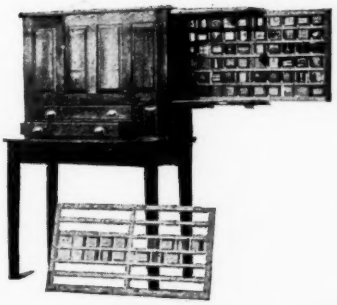

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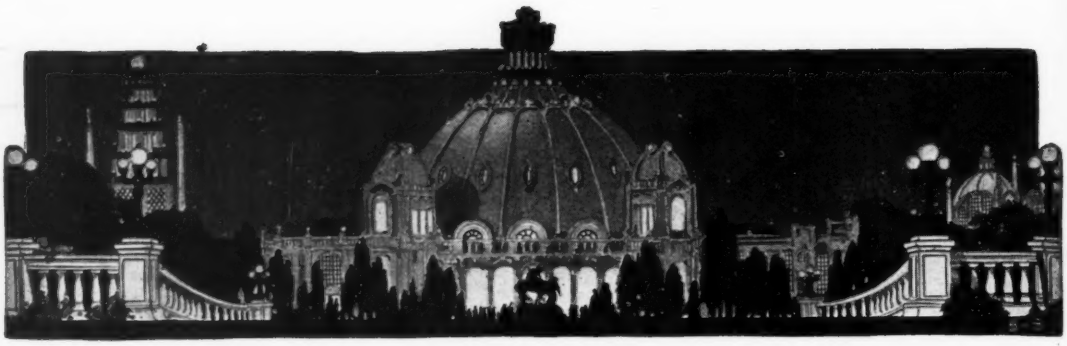

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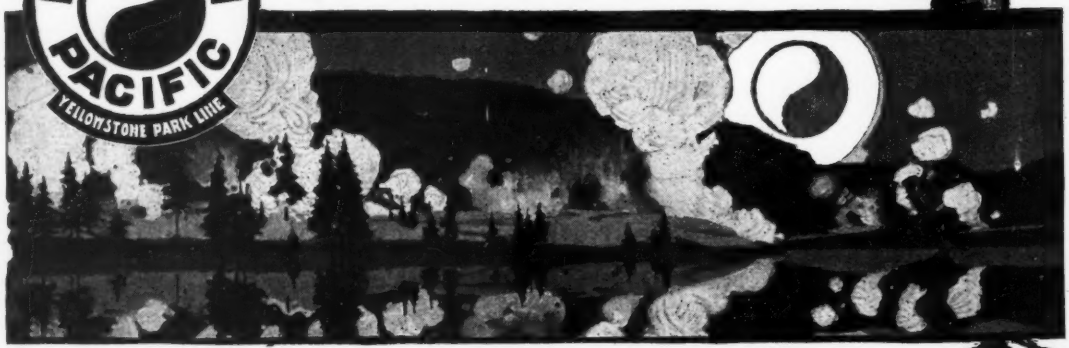

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